NEW-YORK FARMER
AND
Horticultural Repository.

VOL. 3.] NEW-YORK, MAY, 1830. [NO. 5.

ART. LXXXII.—*Miscellaneous Selections from Foreign Publications.*

Destroying Slugs, Limax cinereus and agrestis.—Mr. Gorrie discovered by accident that not only are slugs destroyed by the urine of black cattle, or the drainings of a cow-house, or of dunghills, if poured on them, but the approach of others to the ground so moistened prevented for a considerable time. The drainings of the cow-house may be diluted with about one third of water.

The Ploughing Match of the West Kent Agricultural Association, the founder of which was Mr. Dickson, the very intelligent and active occupier of the farm of Kidbrook, near Deptford, took place Nov. 3. The great object of the association is to introduce two-horse swing ploughs; seven of these started, "on a piece of pure clay," but we are told that this clay was in such a state that the teams could only get through their work "by snatches." We notice the statement chiefly for the sake of hinting at the great disadvantage to the landlord, the farmer, the community of England, and we may say to the whole world, of that monopoly which forces such land into cultivation. If the trade in corn were free, no such soils in a moist climate would ever be ploughed at all; they would be employed in the production of cheese, butter, and butchers' meat, or they would be planted. In either case the public would gain. It is now perfectly clear to us that land may be ploughed incomparably cheaper by steam than by horses, the engines being stationed from point to point, in the manner of the fixed machine employed in drawing Lumbert's mole plough; and whenever this shall take place generally in the corn countries of Europe, the price of corn must inevitably fall so low, that only the best corn soils will for a while be cultivated. Then will be found the advantage of having grass-lands and woodlands, and the parks and lawns of England will be found doubly useful and ornamental.—*Louden.*

The Invention of a Steam Plough.—Henry Handley, Esq., of Culverthorpe, near Sleaford, in Lincolnshire, has, in the *Farmer's Journal* of December 14, offered a reward of one hundred guineas for the invention of a steam plough. We cannot but highly applaud such a spirited proposal, and we are convinced that a very few hundreds more would produce the invention. A very little reflection will convince both landlord and tenant that they would be great gainers by the substitution of steam for horses in ploughing, harrowing, and thrashing, if not in reaping and other operations. Less capital would be required of the farmers, who would, at the same time, have more disposable produce.—*Louden.*

Benefits from a taste for Gardening.—I think nothing contributes more to the sobriety, comfort and cleanliness of a laborer, than a taste for gardening, when it can be instilled, and which, I think, a proprietor ought to promote by every means in his power. I have seldom known a laborer who was fond of and kept his garden neat, whose house and family also, were not so, and who did not spend his leisure hours with them, and in his garden, instead of in the alehouse. I have generally found them fond of gardening; but, for want of sufficient knowledge, they often get disgusted by their not succeeding to their wishes.

The Cattle Trade in Liverpool.—Since the introduction of steam vessels into the Irish trade, the importation of cattle and live stock has grown into a most important branch of trade. The uncertainty which formerly attended their transit, when sail vessels only were employed, and the occasional heavy losses which were sustained by the detention in port by contrary winds, were great obstacles to the extension of this trade. The nature of the risk rendered it an extremely hazardous and speculative business. These evils are obviated by the introduction of steam vessels, and there is no doubt of its progressive increase. Those advantages, in the most important of the necessaries of life, cannot fail to be highly beneficial to the community at large, and particularly to the populous towns. Formerly lean cattle only were imported; now fat cattle are brought in considerable numbers, which, as soon as landed, are driven to the Kirkdale market (the Smithfield of our port), which is in consequence rapidly increasing in importance. The alteration is also extended to the grazier's business, which is now carried on to an extent that, perhaps, few individuals are aware of. After leaving the Kirkdale market on a Monday, they proceed to the Manchester market, which is held on a Wednesday; thence to Birmingham, and finally to Leicester, which is the general rendezvous for the South country dealers to meet the droves, and from whence the cattle are drafted into all the feeding and grazing districts.

The following is a statement of the importations during 1828, and have fixed a value to the several items, as affording a clearer and more satisfactory index to the prodigious value of the cattle trade. Such value, however, it must be understood, is an arbitrary one, being an addition of our own.

59,375	head black Cattle, average	16*l*.	£950,000
123,788	Sheep	35*s*.	25,379
115,743	Pigs	40*s*.	231,486
640	Horses	25*l*.	16,000
336	Mules	8*l*.	2,704
721	Calves	3*l*.	2,163
1,368	Lambs	18*s*.	1,224
		Total	£1,228,956

Gore's Liverpool Advertiser.

Use of Salt.—It is singular that such a body of evidence should be brought together on the advantages of the application of a moderate quantity of salt to

every description of growing crop, from grass to timber trees, and to almost every domestic animal, from the horse to the honey-bee, and yet that salt should be so little in use. We have not a doubt ourselves that it may be of real use to live stock; because we have seen it very generally given on the Continent. Mr. Johnson says, "I have given my own gig-horse an ounce of salt every night in his corn, for the last five years; and though he has, during that period, worked very hard, he has continued in the best health, never having had a dose of physic in his life." To be able to dispense with physic, either in the economy of men or cattle, is a grand object; and we certainly think the occasional, or perhaps the constant, use of salt in the food of domestic animals, and especially in that of the horse, as being in a more highly artificial state than the others, a desirable object.

Lats of Weight by Cooking, in Butcher's Meat.

		lb.	oz.
4 lbs. of beef, during	boiling, lose	1	0
Do.	roasting, lose	1	5
Do.	baking, lose	1	3
Do. of Mutton	boiling, lose	0	14
Do.	roasting, lose	1	6
Do.	baking, lose	1	4

Jour. des Conn. Usuelles.

Superior Intelligence of the Dog and Elephant.—The dog is the only brute animal that dreams, and he and the elephant the only quadrupeds that understand looks. The elephant is the only animal that, besides man, feels sorrow; the dog the only quadruped that has been brought to speak. Leibnitz bears witness to a hound in Saxony, that could speak distinctly thirty words.—*Med. Gaz.*

Winter Beans.—A Lincolnshire writer gives the following particulars respecting these beans:—

"They were introduced into this neighborhood by Mr. Henson, of Stow, near Folkingham, who, in December, 1825, sowed four bushels on about two acres and one rood of land. The extreme drought of 1826 affected them a good deal; they were ripe and reaped the first week in July; produce, six quarters. In October, 1826, he sowed seven acres with twelve bushels, which were reaped the last week in July; produce forty-two quarters! a beautiful sample, weighing 19 stones per sack in the autumn; this crop was a most fortunate one, as he sold for seed to persons in the neighborhood thirty-six quarters, at 4*l.* per quarter. He has this year twelve acres, which are very luxuriant, but apparently will have too much straw to be productive; they are drilled in rows twelve inches apart, but are too thick by half, as they stool and branch very much, several stems proceeding from the same root. The other crops sown hereabouts look extremely well, and they have all resisted the winter frosts. I have about seven acres, which were not sown till March; they are drilled two feet asunder, appear as well as any spring-sown beans, but by no means equal to those sown in Autumn. Premising that this experience will justify the conclusion that these beans will resist the winter frosts, they will certainly be a desirable substitute for the common bean, as the advantages of sowing in the Autumnal months, and reaping in July or August, upon land intended for wheat, are incalculable."—*New Monthly Magazine.*

ART. LXXXIII.—*Notice of Physicians who have distinguished themselves in Botany.* [Continued from page 88.]

JOHN MARTIN, was born in 1699. His father, being in a mercantile station in London, he was intended to succeed in this, which he does not appear to have neglected; but his taste for literature led him to devote much of the night to study. His partiality, however, was particularly directed to botany, and he made many experiments on the germination of seeds, &c. When about 22 years of age, he became secretary of a botanical society, and proved one of its most active members: three years after, he was admitted into the Royal Society, and many of his papers appeared in the Philosophical Transactions, of which he subsequently took a part in the abridgement. At what period he changed to the medical profession is not known. In 1726, he published his tables of officinal plants, disposed according to Ray's system. Having given public lectures on botany in London with much approbation, he was thought qualified to teach that science at Cambridge; and accordingly, in the following year, he delivered the first course ever heard in that university. In 1730, he entered at Emanuel college, with an intention of graduating in physic; but this was soon abandoned on his marriage, and from the necessary attendance to his profession in London. On the death of the botanical professor at Cambridge, Mr. Martyn was appointed to succeed him in the beginning of 1733; but he continued lecturing only two or three years, owing to the want of sufficient encouragement, and especially of a botanic garden there. In 1741, he published a splendid quarto edition of Virgil's Georgics, in which much new light was thrown on the natural history of that author. Dr. Halley having assisted him in the astronomical part; this was followed by the Bucolics, on the same plan. In 1752, he retired from practice, and about nine years after resigned his professorship in favor of his son, the Rev. Thomas Martyn; in consequence of whose election he presented his botanical library, of above 200 volumes, with his drawings, herbarium, &c. to the university. He died in 1768.

JOHN ANDREW MURRAY, was born at Stockholm, of a Scotch family, in 1740. At 16 he was sent to Upsal, and had the benefit of the instructions of Linnæus, for whom he ever after entertained the highest esteem. In 1759 he took a journey through the southern provinces of Sweden, and thence to Copenhagen; and in the following year he went to Gottingen, where his brother was professor of philosophy. In 1763 he took his degree of doctor in medicine, and by a special license from the Hanoverian government, gave lectutes in botany: and in the following spring he was appointed extraordinary professor of medicine in that university. From this period his reputation rapidly extended: he was elected a member in the course of a few years of most of the learned societies of Europe. In 1769 he succeeded to the actual professorship of medicine, and was made doctor of the botanic garden. He was still farther honored by receiving the title of the Order of Vasa from the King of Sweden in 1780; and two years afterward, by being raised to the rank of privy counsellor by his Britannic Majesty. In 1791 he was attacked with a spurious peripneumony, which shortly terminated his existence. He was a man of sound judgment, great activity, and exten-

sive information. He composed a great number of tracts on various subjects in botany, natural history, medicine, pharmacy, and medical literature. His principal work, which occupied a large portion of his time and attention, was on the Materia Medica, under the title of "Apparatus Medicanium," in six octavo volumes: indeed, he was employed in correcting the last for the press the day before his death. In the Transactions of the Royal Society of Gottingen, there are many valuable papers by him, chiefly botanical; and his descriptions are deemed models of elegance and accuracy.

Wyer-William Muys, was born at Steenwyk, in 1682. His father being a physician, he was led to follow the same profession, and at 16 commenced his studies at Leyden, whence he went to Utrecht, and took his degree of doctor in 1701. He settled at first in his native town, and afterward removed to Arnheim, where he practised with reputation. In 1709, he was elected to the mathematical chair at Franeker, where he subsequently filled also those of medicine, chemistry and botany. The House of Orange afterward retained him as consulting physician, with a considerable salary, which he received to the end of his life in 1744. He had been five times rector of the university of Franeker, and was a member of the Royal Academy of Sciences of Berlin. His writings were partly medical, partly philosophical. Of the former kind was a dissertation, highly commending the use of sal ammoniac in intermittents: also a very elaborate investigation of the structure of muscles, comprehending an account of all that had been previously discovered on the subject.

Peter Paaw, was born at Amsterdam, in 1564. After studying four years at Leyden, he went to Paris, and other celebrated schools, for improvement; and took his degree at Rostock. Thence he repaired to Padua, and attended the dissections of Fabricus ab Aquapendente; and, possessing a good memory, as well as great assiduity, he evinced such respectable acquirements, that he was appointed to a medical professorship on his return to Leyden in 1589. His whole ambition was centred in supporting the dignity and utility of this office; and he obtained general esteem. Anatomy and botany were his favorite pursuits; and Leyden owes to him the establishment of its botanic garden. He died in 1617. Besides some commentaries on parts of Hippocrates and other ancient authors, he left a treatise on the Plague, and several other works, chiefly anatomical.

Peter Simon Pallas, was born at Berlin, where his father was professor of surgery, in 1741. He applied early and assidiously to his studies, particularly to dissection, insomuch that he was enabled, at the age of 17, to read a public course on anatomy. He then went to Halle, and in 1759 to Gottingen, where a severe illness for some time interrupted his pursuits; but he afterward made numerous experiments on poisons, and dissection of animals; and composed a very ingenious treatise on those which are found within others, particularly the worms occurring in the human body. In the following year, he took his degree at Leyden, then travelled through Holland and England, directing his attention almost entirely to natural history. In 1762, his father recalled him to Berlin; but allowed him soon after to settle at the Hague, where he could better prosecute his favorite studies; the fruit of which shortly appeared in a valuable treatise on zoophytes, and some other publications: and he was admitted into the Royal Society of London, and the Academy Naturæ Curiosorum, to which he had sent interesting papers. About this period he meditated a voyage to the Cape of Good Hope, and other Dutch settlements; but his father again recalled him in 1766. However, in the following year, he was induced by Catharine II. to become professor of natural history at St. Petersburgh. Thence, in 1768, he set out, with some other philosophers on a scientific tour, as far as Siberia, which occupied six years. Of this he afterwards published a most interesting account in five quarto volumes comprehending every thing memorable in the several provinces which he had visited. This was followed by a particular history of the Mongul tribes, who had, at different periods, overrun the greater part of Asia, and whom he clearly proved to be a distinct race from the Tartars. In 1777 he read before the academy a dissertation on the formation of mountains, and the changes which this globe has undergone, particularly in the Russian empire. He also published, from time to time, numerous works relative to zoology, botany, agriculture and geography. About the year 1784, he received signal proofs of the empress' favor; who not only considerably increased his salary, and conferred upon him the order of St. Vladimir, but learning that he wished to dispose of his collection of natural history, gave him a greater price than he had valued it at, and allowed him the use of it during his life. In 1794, he travelled to the Crimera, of which he published an account on his return: and his health now beginning to decline, the empress presented him an estate in that province, with a liberal sum for his establishment. Unfortunately, however, the situation was particularly unhealthy, and proved very injurious to his family. At length he determined to visit his brother, and his native city, where he died shortly after, in 1811.

Augustus Quirinus Rivinus, was son of a learned physician and critic, Andrew Bachmann, whose name was latinized into Rivinus, and born at Leipsic in 1652. He graduated at the age of 24, and fifteen years after obtained the professorships of physiology and botany in his native university; he was also associated with many learned bodies; and he filled these appointments with honor to himself till his death, in 1723. Rivinus distinguished himself chiefly as a systematic botanist; but his arrangement was very defective, being founded on the number of the petals, and their being regular, or irregular. Though by no means eminent as a practical anatomist, he is said to have discovered a new salivary duct. As a medical writer, he has the merit of faithful observation and description in his treatise "De Peste Lipsiensi," published in 1680. He wrote also on dyspepsia, on intermittents, and various other subjects. His "Censura Medicamentorum officinalium," ranks very high, on account of the freedom with which he attacked opinions, however generally received, which he believed erroneous; and to the prevalence of this spirit we owe the great simplification, and other improvements, which the Materia Medica exhibits at present.

Joseph Pitton de Tournefort, was born at Aix, in Provence, in 1656. He was destined for the church, but a taste for natural knowledge led him, at his father's death, to change for the profession of physic.

He therefore qualified himself thoroughly in anatomy, chemistry, and other branches of medical study, and likewise distinguished himself as an elegant writer and lecturer; but he displayed especially an ardent devotion to botany, which ever after made the chief object of his life. His zeal in this pursuit led him to encounter considerable danger in exploring the Alps, Pyrenees, &c. during several seasons, passing the intermediate winters at Montpelier; but he is said to have graduated at Orange. His merits as a botanist, soon became conspicuous at Paris, and the superintendence of the royal garden was resigned to him by Fagon. In this school he soon drew together a crowd of students; but anxious for farther improvements, he travelled into the neighboring countries, and thus greatly enriched his collections. He was admitted a member of the Academy of Sciences, and of the Medical Faculties at Paris; and was likewise decorated with the order of St. Michael. He published about the same period several botanical works, of which the principal is entitled, "Institutiones Rei Herbariæ." In the year 1700, he set out, under royal patronage, on a voyage to the Levant, with a view of investigating the plants of ancient writers, and making new discoveries; and on his return, after two years, he wrote a very interesting and valuable account of the expedition in French, which was not published, however, till after his death. This took place in 1708, in consequence of a hurt in the breast, which he received from a carriage. He left his collection of plants to the king, who bestowed in return a pension of a thousand livres on his nephew. Besides the botanical works published by him, he is said to have left several others in manuscript. One object, which had occupied much of his attention, was to determine the medical virtues of plants by a chemical analysis; but the loss of these labors is not to be regretted, as those of Geoffroy, on the same plan, turned out to be without any solid advantage. The elegance and facility of Tournefort's botanical method gained him many followers at first; but it has since been superseded by that of Linnæus, which is much more systematic and comprehensive. Still, however, it must be acknowledged, that the generic distinctions established by the former botanist, and most accurately delineated, have been the principal foundation of subsequent improvements.

[From the American Farmer.]

ART. LXXXIV.—*Introduction of New Plants—Extract of a letter from Henry Perrine, Esq. Consul of the U. S. at Campeche, to the Secretary of the Treasury of the United States, dated, Consulate, U. S. A. Campeche, Jan. 1st, 1830.*

During the past year, the subscriber visited the *Laguna de Terminos*, principally on account of the logwood and merida, and of the Sisal hemp. He is thus enabled to confirm the information already communicated relative to the tree and the plant, as well as his opinion of the transcendant importance of the latter. Details are reserved until he ascertains how it is affected by the winter of the U. S. as he has had the pleasure to learn, that of the plants sent by him at various periods to Doctor Samuel L. Mitchill, of New-York, and Domingo Fleitus, Esq. of New Orleans, several varieties of this southern hemp, (or *Agave Americana*) are thriving under their care in both cities, notwithstanding the difference of latitude and climate. Four plants of the celebrated *Magney 'de Pulque,'* from the vicinity of Mexico, are now flourishing in this city. This variety of the Agave Americana, so noted for the *drink* it affords, will therefore probably bear to be transplated to our southern states, with the others, whose principal value resides in their *fibres*—an opinion in which Dr. Mitchill coincides.

As the subscriber has not heard of the fate of the last young logwood trees sent to New Orleans, during the autumn, it is believed that his often repeated attempts to transmit the living *Hæmatoxylon Campechianum*, have all failed—the more to be regretted, as another winter must pass to test its capacity for existence in all temperatures of our south western shores.

The '*Ramon*' is a flourishing tree in the driest seasons, whose leaves and branches are here the universal substitute for grass and cane as food for domestic animals—the greater number of which have no other means of subsistence. It is conceived to be, at the least, as worthy as the logwood of the experiment of transplanting to our coasts on the gulf of Mexico. Being both useful and ornamental, it abounds in the gardens and lots of every town and village. The produce of three acres may maintain a small family. A newspaper paragraph, relating to the scarcity of food for animals at Mobile and Pensacola during the last season, has prompted this brief notice of the '*Ramon*.'

Although the subscriber's attention was directed, by the treasury circular, to vegetables only, he begs leave to recommend the introduction into the United States of the *stingless bees* of Yucatan, on account of the peculiarities of their wax and honey, as well as the facility of rearing them.

ART. LXXXV.—*Bone Manure.*

The *Doncaster Agricultural Association* has lately published a report on the advantages of bones as a manure, founded on returns received in answer to queries issued by the committee, of which the following is a digest:—

The questions issued to the members referred to the time bones had been used—number of acres—state of the bones and their size—quantity employed—kind of soil—what time of the year, and for what crop—how applied, and which most convenient—effects compared with other manures, and other manures with them.

Answers were received from 49 members, and which collectively show, that bones were first used by Colonel St. Leger in 1775, next by Mr. Horncastle in 1794; but that they have only come into more general use within the last twenty years. The returns establish the great value of bones as a manure;—on light dry soils they are found to be superior to farm-yard dung; and altogether from the lightness of carriage, suitableness for the drill, and fertilizing properties, superior to any other in use among farmers. One waggon load (of 120 bushels of small drill bones, that is half inch pieces) is equal to 40 or 50 cart-loads of fold manure. Their effects are visible, not only on the first, but for several succeeding crops;—usual quantity 60 or 70 bushels per acre. When drilled, from 12 to 20 bushels suffice; and when this quantity is given to turnips, either upon the four or five course system, the farm may be kept in a progressive state of improvement.

"On heavy loams or clays the experiments are unfavorable." Hence it is concluded, that the bones are less suitable for wet than for dry land. For dry, or well-drained peat soils, they also prove superior to fold dung, nay, even to lime and pigeon dung. On the efficacy of bone dust on gravel, opinion is divided, but answers better on dry than on such as is wet. Of its durability an instance is given of one dressing continuing effective for fifteen years: but granting their application secures a crop only for the first year, the advantages are great, because one good crop of turnips is generally followed by others of both barley and clover.

One writer observes, that young turnips dressed with bone dust are less liable to the fly than those raised on common dressings, because he thinks the larva of the fly are contained in and carried forth with the fold or yard dung. The same writer, Mr. Birks, thinks bones are a defence against the insects which produce the disease called fingers and toes.

Every one of the members who had begun to use bones continued to do so;—no man being considered a good farmer who does not use them. Some of the members have adopted a very excellent plan, which should be followed every where, were it possible, viz. raise their turnips by bone dust, reserving all their yard or fold dress for their clover or wheat; so that a farm naturally inferior may soon be made and kept rich. Laid on pasture land, the effects are most conspicuous and profitable—quantity of milk increased, and quality of both butter and cheese improved. On grazing land it is also very lasting.

The best mode of application is by drilling with turnips in May, June, July, and August, especially for Swedish turnips. Others sow them broad cast, and afterwards gather the surface into clasp-bouts for drilling. Some sow the dust broad-cast before the last furrow for white turnips. All agree in the belief, that the smaller the bones are crushed, the sooner they serve the crop; but the larger the pieces are, the longer will they continue effective. Average quantity employed per acre is 39 bushels, though if very small, a less quantity will do; but this mainly depends on the state of the ground as to richness.

The condition of the bones, when used, is a material question.

On a first consideration every one would be led to conclude, that they would have the most powerful effect when saturated with marrow and other animal juices; and would as readily imagine that dry and exhausted bones would be little worth; but it appears, that both these plausible notions are wrong. It does not seem to be the animal matter of fat, tendon, marrow, or muscle, which is the food of the plant, but probably some gazeous quality evolved during their decomposition. Thus bones which have passed through the process of an oil or glue manufacturer, are found to be more effectual as manure than recent bones from the kennel; and it seems to be settled by experience, that they require to be fermented in a heap before they can be used successfully. Fifty bushels of bones mixed with five loads of burnt clay, or good earth, form an excellent compost for dressing an acre of land. Some of the members recommend mixing the bones with several other substances, as soot, dove manure, rope dust, ashes of burnt weeds, and rotten dung, which they gravely assert will very much assist the action of the bones. A wet season, or wet ground, neutralizes the effect of the bones, and therefore, it is only on dry soils, or in dry seasons, that they yield their best effects.

The present price of bones is said to be 2*s.* per bushel for small, and 1*s.* 10*d.* for large sized dust. Of the former, 25 bushels would cost 2*l.* 10*s.*, and of the latter, 40 bushels would cost 3*l.* 13*s.* 4*d.*; and these are shown to be equal to eight or ten loads of dung, which would cost 4*l.* or 5*l.* But they have an extra value in being easy of carriage, and expeditiously applied.

From the general opinion that bones are most effectual in dry seasons and on dry soils, it would appear that the nutritive quality is either the lime or the salt they contain, because both these being powerful absorbents of moisture, give a vigor to vegetation beyond what either the season or soil would afford. In Lincolnshire, where bones are extensively used, the farmers invariably prefer the *hardest* description—such as the leg bones of horses or other animals.—*British Farmer's Mag.*

ART. LXXXVI.—*Progress of mankind in Agricultural Knowledge.*

In the infancy of society, knowledge of every kind is almost entirely restricted to particulars. It is after long and repeated observation that the mind is led to generalize facts, and to classify and systematize those general facts, is the highest species of exertion of which the human intellect is capable. By the multiplication and extension of these systems the progress of civilization may every where be accurately marked; the advance of manners and the arts being simultaneous with that of philosophy. And that period of human existence may be pronounced the most perfect, when the speculations and conclusions of philosophy are carried from the closets of the learned to explain and improve the practical economy of civil life. The gradations here noticed are made with remarkable slowness. Long intervals elapse before observation is succeeded by philosophical reflection, and a still longer time intervenes before the deductions of philosophy become the guides of mechanical exertion. These truths are no where more strikingly exemplified than in the progress of agricultural knowledge. At first supplied by the bounty of nature, man contentedly gathered what was spontaneously produced; he ate of the fruit of the fields with the same incurious satisfaction that he drank of the rivers that ran through them. Experience, however, would soon teach him that such supply was precarious; that though nature had done much, yet she had left much to do, and instead of finding all her operations succeeded by unchanging results, he would witness vicissitudes which interfered with his comforts, and failures which might sometimes threaten his existence; in fine, she would have seemed to have scattered the means of rescuing those operations from contingency, for the particular purpose of giving him employment in their re-collection. In the prosecution of this employment he would feel himself interested in the processes of vegetation, in removing obstructions and providing auxiliaries: these would stimulate research, accident would supply knowledge which reason could not confer: but knowledge so acquired would be extremely limited, it would just reach

the boundaries of his wants; an increase of which would impel him to fresh observation, and consequently to fresh knowledge. Thus agriculture originated, and thus it advanced; even at the present day it consists of operations little understood in principle, and processes adopted from no better authority than traditionary sanction: tradition that furnishes general precepts where particular instructions are required; that tells what is to be done every where, and on every occasion, which can be done in few places only, and for singular purposes, with any prospect of success.

What has been thus transmitted to us imperfect, it becomes us to endeavor to complete; to investigate immutable laws, to trace back constant effects to unchanging causes, and to observe the gradual formation of organized matter, are pursuits really delightful because they are rational; interesting, because they furnish fresh proofs of intelligent, beneficent design, to enlarge the scheme of piety; and useful, because they afford practical knowledge to improve the condition of man. It is the last consideration that is most important at the present moment. The immense increase in the population of the country, and the certainty, that all other countries are rising rapidly to the same condition, render it necessary that every exertion should be made to improve the productiveness of the soil; to obviate the liability to failure; and, consequently, to make the supply as certain as the demand is constant. This can be effected in no other way than that of conducting the business of agriculture upon fixed principles. To be secure, every operation must be well understood.

As I have mentioned the immutability of the laws of nature, as an encouragement to promote the investigation of physical phenomena, so it may be necessary to explain, in this place, how far our investigations can extend, and what are the limits beyond which they cannot pass. Every attempt that has hitherto been made to discover first causes has ended in disappointment; the first springs of action, the primum mobile of nature, are inscrutable to human sense; and imagination speculates in vain when unassisted by observation: happily for man his well-being here is independent of such knowledge. It is sufficient for him to know that the materials of this globe which he inhabits will act upon each other in a particular manner under particular circumstances; the manner and the circumstances are the considerations with which it is more immediately important for him to become acquainted.—*Grisenthwaite.*

[From Louden's Magazine.]

ART. LXXXVII.—*Agriculture of the Environs of Paris and London.*

The agriculture of the environs of Paris differs from that of the vale of London, in being almost entirely in aration, whereas with us it is almost entirely in grass. A greater portion of the surface for twenty miles round Paris is under wood, than is the case for the same distance round London; because in France, generally, wood as a territorial product is of more importance than in England. A part of the surface is covered with vines; but this part, the market-gardens, the nurseries, and the orchards, bear nothing like the same proportion to the general surface, that gardens, orchards, and nurseries do in the neighborhood of London. The farms in the neighborhood of Paris are small, generally under 50 acres, and the culture various, including coppice wood, corn, pulse, lucern, roots, and vines; those in the neighborhood of London are considerably larger, from 50 to 300 acres, and the culture limited to very few objects, chiefly corn, grass and roots. In both tracts there are farm gardens, in which the culture of culinary vegetables is carried on by the aid of horses or cattle, and combined with the raising of common farm produce; but the number, as well as the size, of these is much greater round London than round Paris.

The personal character of gardeners and farmers in the neighborhoods of the two capitals remains to be compared.

With the exception of a few individuals in Paris who have been regularly educated, and who, if they can be equalled, can at least not be surpassed in scientific attainments, by any cultivators in or about London, the great majority of French gardeners and farmers are deplorably ignorant, not only in the science of their profession, but in general knowledge. Two thirds of them, we should think, can neither read nor write; they are badly clothed, have only wooden shoes in winter, and go barefooted in summer. The French spade has not a hilt, but a very long handle, and in digging is thrust in by the strength of the arms. In hard ground a pick is used; so that in neither case are shoes wanted. There are very few men who work in gardens in France, who, in knowledge, rank above the common country laborers; and this will not soon be otherwise, because it is not likely that there will soon be a great demand for intelligent serving gardeners in France. The French laborers, however, in another generation will become as generally enlightened as British gardeners now are, in consequence of the liberty and sense of citizenship which they at present enjoy, and of the extraordinary exertions beginning to be made by the wealthier class to spread among them useful education, and propagate and establish every where arts and manufactures.

The great thing is to be able to communicate to the ignorant of every country a sense of their ignorance, and to convince them that all useful knowledge may be possessed by the poorest as well as by the richest, without interfering with the labors by which the former obtain their daily bread. It will take at least a generation to do this; but when once it is done, the poor, that is, those who are now and ever will be the great mass of society, will take care of themselves. Of this they may be certain, from reflecting on what human nature is, that, if they do not, nobody will do it for them; for no one class of society will ever effect any great good for any other class. It is with classes as with individuals, every one must help himself: God and fortune, as Franklin says, will then also lend their assistance.

The improved condition of the laboring classes of all countries, which we contemplate, when it shall once arrive in France, will give in-door employment to the wives and daughters of the country population, whom it is lamentable to see at present performing those labors in the gardens and fields which in England are only performed by men. There are various light out-of-door employments, for which women and children are well adapted, and which in moderation, in fine weather, and with broad-brimmed straw hats and good

shoes and stockings, will neither injure their health nor spoil their form or complexion; points that both in a physiological and moral view ought never to be lost sight of: but at present, in the neighborhood of Paris, women may be seen performing the offices of masons' laborers, holding the plough, driving harrows, digging, picking, wheeling a barrow, and splitting timber for fuel. This state of things is perhaps in a great measure the result of the long and continued wars which have drained the country of the men of this class; and it is to be wished, above all other things, that the mass of this and of every other people might speedily become sufficiently enlightened to know their own power and importance in society; sufficiently united to co-operate in abolishing all slavery, mental and corporal; to put down monopolies of every kind; render trade universally free; and to resist all attempts of their rulers to lead them into wars, or to greater expense in any way than is necessary for the ends of good government. The first step to obtain these objects, and to maintain them, is the establishment of representative, or what the noble Jefferson calls, self government; and to this approaches are gradually preparing in both countries, and, it may be said, throughout Europe.

The progress which the French have made in the improvement of Paris and its environs, since we first saw them in 1815, is very considerable; and what is the more gratifying, this improvement is most obvious in public works applicable to the uses of every body. Such, for example, as widening the streets, adding foot pavements, lighting by gas, the formation of commercial markets of a variety of kinds, the establishment of manufactories, &c. &c. The improvements in the environs are not quite so obvious; but, still, the number of nurseries, tea-gardens, and small villas, has increased. It is gratifying to observe that not much expense has been bestowed on the royal palaces; the present king has introduced the culture of the pine-apple in the royal forcing-ground at Versailles, but he has done little to the buildings there or elsewhere. It is well for a French king of the present day to have sagacity enough to think it unnecessary to care for his successors.

Whatever may be the difference in the wealth, prosperity, and happiness of the two countries at present, we may be certain that they are ultimately destined to become as nearly the same in these particulars as the difference in geographical circumstances will permit. France, we have given it as our opinion in former parts of this tour, and in the *Magazine of Natural History* (Vol. II. p. 75.,) possesses a climate more favorable to the developement of human happiness than that of Britain. It will not, therefore, we trust, be alleged against us that any part of the preceding general views have been influenced by prejudices against a nation that we love and esteem.

In our next we shall proceed to details, commencing with the public and royal gardens.

ART. LXXXVIII.—*Light unfavorable to Vegetation.*

As moisture, oxygen gas, and heat, are favorable to germination, so light is unfavorable to it. This arises from certain rays of the solar light; those rays have been called, from the property they possess, deoxydizing, and consequently have a tendency to prevent the combination of oxygen with other substances, and therefore must resist that disposition to union, which is necessary in germination. Hence the reason why seeds require to be covered by the soil, and why the process of malting is conducted most rapidly in the dark; and hence, probably, the reason why the sun's rays extinguish fire.

Although light acts unfavorably to germination, yet when the plant is formed, it becomes a powerful agent in assisting its growth, so much so, that without light it is reasonable to infer, that not a single tree could arrive at maturity; flowers would be destitute of color, scentless, and their inflammability would be destroyed. Hitherto the progress of germination has been considered only as marking the changes which are produced in the constituents of the seed; but if we carry our examination a little farther, we shall see that the consequence of such change, is the extension of the sprout and roots; the former to become the stem to sustain branches, leaves, and fructification; the latter to derive nourishment from substances contained in the soil. Here chemistry ceases to afford explanation. Here philosophy is bewildered, and is constrained to acknowledge its researches unsatisfactory. Why the presence of a moderately warm solution of sugar within a seed, should occasion two portions of matter, hitherto apparently inert, to prepare themselves to perform such important offices, can be explained by no principle with which we are at present acquainted; and the wonder becomes still greater when we find the chambers in which the food has been stored, converted into seed leaves, the stem acquiring color, and sending out shoots, and, finally, flowers and fruit.

To explain the manner in which organized matter is generated, is one of the most difficult and interesting inquiries of philosophy. When glands are once formed in the human system, and secreting vessels analogous to them in vegetable, we are greatly assisted in forming our notions concerning the production of particular fluids and solids, and the evolution of matter constituting growth; but the formation of those glands and vessels is scarcely explicable, except on the hypothesis, that other glands and vessels have *previously existed* to produce them; and thus we are merely carried back in our researches, without advancing one step nearer to the elucidation of the difficulty.—*New Theory of Agriculture.*

ART. LXXXIX.—*New Mode of propagating the Pæonia Moutan.*

In February select any of the stems of the *Pæonia Mousan*, or all may be used: and at the distance of half an inch from the centre of each bud, both above and below it, cut out entirely round the stem a small ring of the bark, rather more than the sixteenth of an inch wide, in the manner of common ringing, as practised on fruit trees. Thus every bud will occupy one inch of the stem, where the direct continuation of its bark is obstructed, both above and below, by the rings which have been cut out of it. The stems so prepared are then to be laid horizontally about 3 inches beneath the soil, leaving only the leading bud at the end of each branch above the surface. In six months every bud will have made a vigorous shoot, and, in general, will have two radical fibres at its base. In August remove

the soil from above the layers, and having raised the newly made roots, carefully separate each young shoot from the main layer, by passing a small knife from one ring to the other, cutting out about one third part of the old stem. The young plants should then be immediately potted, to remain till they are required for planting out in their final situations. After thus gathering the first crop of young plants, the old layers should be again covered with good soil, and left as before; and in the following summer a second and greater crop of plants will be produced than in the first season, and, what is most remarkable, they will issue from various parts of the stem, where no trace of a bud was previously indicated.

Again, if a stem be detached from the parent plant and treated as described above, and then laid in soil in a pine-pit or stove, it will shoot almost as freely as if connected with the original root.

In another experiment, cuttings, of about an inch in length, were made of the *Pæonia Moutan*, in the manner of vine cuttings, having one bud on each, and about half of the stem behind the bud slit up, and the pith removed. These were put three inches deep in pots of soil, and plunged into an exhausted bark bed, having a temperature of about 60°. In the space of two months, these cuttings made young shoots through the soil and grew freely.

The above ready methods of propagating a plant hitherto expensive are truly valuable: they are not the results of our own experience, but we witnessed the success of part of the experiments, and can rely upon the accuracy of the whole.—(*Botanic Garden*, part v. No. 241.)

[Agreeably to a resolution of the New-York Horticultural Society, we commence making abridged translations from foreign publications sent to the Society.]

ART. XC.—*Translations from the Annals of the Horticultural Society of Paris.—Numbers for June and July*, 1829. By the EDITOR.

The first article in the June number, is a memoir on experiments made in raising cotton in the Island of Corsica, by the Baron Angellier, the Prefect of that Department. As early as 1802, attempts were made to cultivate cotton in this Island. The attention now given to the manufacture of cotton goods in France, and the efforts made to encourage domestic manufactures, led the Baron Angellier more recently to commence experiments, in the Botanic Garden and Nurseries at Ajacio, which have been followed by a success sufficient to merit the attention of cultivators, and to conduce to the belief, on the part of the Baron, that cotton would become one of the agricultural products of his department. Six or seven kinds were tried. Among those that succeeded best, was the long cotton of Carolina.

Erica Corsica, Corsica Heath.—In a postscript to the preceding article, Baron Angellier speaks of this plant as growing in all situations.

The beauty and great number of the bright rose colored flowers, which grow to the extremities of the branches in the form of a large terminal bouquet, render it worthy a place among the elegant heaths of the Cape of Good Hope.

Construction of hot houses.—This article appears to have been written by an amateur, and contains directions and observations worthy of being read by those having hot houses.

Discourse pronounced by M. de Boisterbrand, Director General of Agriculture, at the opening of the Horticultural Institute of Fromont, the 14th of May, 1829.

We translate a small part of his address, in which he speaks of the benefit of labor.

"He, Sirs, who teaches us to labor," says M. Boisbertrand, "instructs us how to live happily; and it affords me pleasure to repeat the maxim that I have found in the *Annals* published by your estimable founder. "*Labor every where constitutes the worth and happiness of man.*" It refines his taste, it corrects his propensities, it defends him from all seductions, it holds him sweetly enchained to his duties; it embellishes and charms his existence; it makes amends for his forgetfulness, and repairs the injuries of fortune; it does even more, gives that which fortune herself cannot give, that which she too often takes away from those whom she favors,—I mean repose of spirit, peace of heart, the esteem of men, and the happiness to hear without painful emotions that voice of conscience which forewarns of eternal justice."

The next article is a report on a work, entitled "*A Descriptive, Historical and Picturesque Representation of the City, Palace, and Park, of Versailles.* This publication contains more than three hundred copper-plate views of the celebrated gardens of Versailles and Trianon, of the principal monuments of the City and Gardens.

The succeeding article is a *Communication relative to clays baked into bricks*, flower-pots and other vessels. They are of various shapes and recommended for arches, aqueducts, and for purposes in which the power to resist humidity is a desirable property. Their quality is to be attributed to the superior bitumen employed in their burning.

Three new species of Egyptian Beans. (Harricots d' Egypt.) They originally came from Egypt, but are acclimated in Italy. The first is called the *Red Egyptian Bean*, and has been known in Italy about twenty years. The second is the *Variegated Egyptian Bean*, and the third the *Small* Egyptian Bean. The two first are esteemed excellent, having a taste similar to small peas. They are eaten in a green state until they commence to be dry. They are destitute of the disagreeable string or filament along the suture so common in most beans. The third is a pretty ornamental plant; its stem is annual, and climbing, and the leaves articulated. The flowers are large, odorous, lilac purple, and the pods, (legumes) long, thin, and hard.

Mimosa Julibrizin or Arbre de soie, (Silk Tree) is spoken of as a charming tree, and capable of enduring the open climate of Paris. The Abbe Berlese has one at Aubray, twenty-five feet high.

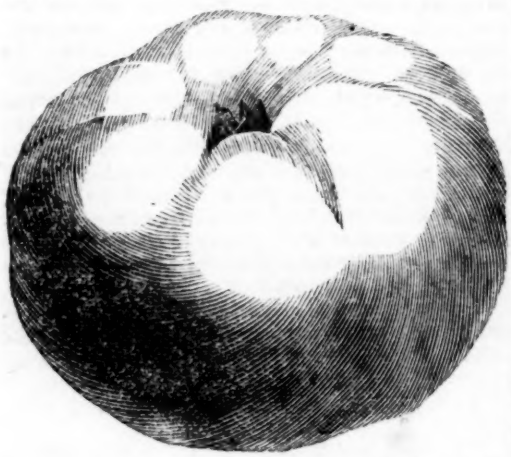
Prizes offered by the 'Society for the Encouragement of Horticulture in the Prussian States.' 1. Can the colors of flowers be changed by the application to their stigmas the pollen of the same species, but of different colors? This subject has been agitated many years. The memoirs describing the operation must be accompanied with dryed specimens, or paintings of the flowers. About $120 (150 écus d'empire) are offered. 2. What influence do different kinds of soil and manures, and also their mixture, have on the fruit of

trees? About $60 (60 frederics d'or) are offered. Time limited to the 1st of May, 1831. 3. Prizes are proposed for Brocoli, Sea-kale (Chou marin,) Tetragonia, Artichoke, and different sorts of Rhubarb, all of which are but little cultivated in Prussia. 4. Liberal prizes are offered for essays on vegetable physiology.

Sittings of the Society. Minutes of the business transactions are regularly published. The good effects of this practice may be gathered from the following as a specimen. "M. Loiseleur-Deslongchamps announced that M. Grammaine, member of the society, offered to lithographate gratuitously, the fruit, &c. coming before the society. Thanks voted and his offer gratefully accepted."

Bibliographical Bulletin. Under this head are brief notices of the books presented to the society. This is calculated to encourage authors in bestowing their books, and to increase the library of the society.

Pomme Sucrin, Sugar Apple. This fruit was exhibited before the Society by M. Mauget, a nurseryman at Orleans, by whom it has been cultivated a long time, and grafts sent to England and other parts. The tree is very fruitful. The fruit is easily preserved until May. The specimen exhibited is 39 lines in transversal diameter and only 22 in height. Its eye, of a mean size, rests in a wide cavity of uneven sides.



The stem is about an inch long, enlarging at the base, and inserted in a deep tunnel shaped cavity. The skin, at first, of a delicate green, then of a clear yellow in great maturity, thin, smooth, without stains or prominencies, and easily detached from the flesh or pulp when ripe. The pulp is white, with a small, fine, green bud, (œil,) and melting in extreme ripeness. The juice is sufficiently abundant, sweet, or very slightly acidulated, with a slight perfume. The cells are of a mean size and contain very large well filled seeds.

Cuttings with one Eye. M. Deslongchamps, from various experiments made with cuttings of two and more eyes, is of the opinion that many plants may be rapidly multiplied by using cuttings with only one eye.

Cabbage Tree, Brassica oleracea, var. arborescens. In answer to a letter from Dr. Mease of Philadelphia, M. Vilmorin reports that this plant (see N. York Farmer Vol. 2, p. 121.) is, in all probability, the *Grand chou-cavalier*, cultivated in the Vendée, in Bretagne, and in other parts of the West of France, although it may, under favorable circumstances, have attained the height of 12 to 16 feet which is much greater than ordinary. In the common and profitable culture, it is left to stand only two years, although it will survive four or five years.

A list of six varieties of this cabbage, cultivated in France, is given, the seeds of which were sent to Dr. Mease.

Red, or Scarlet Oak, Quercus coccinea. Mr. Schonch, in the Annals of Horticulture of Berlin, speaks of this tree as resisting the frosts of Germany well. The leaves assume a purple color in Autumn, instead of a red, as with us; (see N. York Farmer, Vol. 3, p. 5.) An American, whom he had with him in the Garden of the Court of Worlitz, told him that fifteen men could with difficulty encompass one in this country with their arms, and that *sheep (moutons) were very fond of the acorns, which fattened them, and guarded them from all kinds of diseases.*

Coloring properties of the Saphora Japonica. Pro Giobert, in the agricultural publication of the society of Turin, has related his experiments on this plant for the purpose of ascertaining from what part the Chinese obtain the bright yellow coloring matter. He found it in the pulpy substance covering the seed.

The color answers well on wool and silk, but not on vegetable substances. The tree is quite ornamental.

(*To be continued.*)

Art. XCI.—*Abridged Translations from the "Annales de L'Institute Horticole de Fromont." Numbers for April and May.* By the Editor.

In Vol. 2 page 99 of the New-York Farmer, our friend, Dr. Pascalis, has given us a notice of the formation and objects of this Institution. The *Annales* is a monthly publication, conducted by the chevalier Soulange Bodin, the founder and director of the Institute. The first number was published in April, 1829, and is principally occupied with an 'Introduction,' setting forth the objects, regulations, and studies, of the establishment. From these we should judge that this school of Horticulture was destined to raise the character, and very greatly to ameliorate the condition of the gardeners, florists, and nurserymen of France.

The Garden of Fromont contains 132 acres, (130 arpens,) is six leagues from Paris on the road from Fontainbleau, situated in a rich valley watered by the river Seine, and in front of the forest of Sénart. The park has been planted about twenty years, and now presents a beautiful collection of trees and shrubs of all kinds. There are not less than three acres watered by pipes and aqueducts, occupied with magnolias, azaleas, andromedas, and roses. The green houses occupy about 2000 feet in length. The water, conducted by pipes of lead, and regulated by cocks, is poured into reservoirs of stone, lead, and zinc, placed in each apartment. The parts devoted to seed beds, and cuttings for the instruction and experiments of the pupils, are not less than 4 or 5000 feet long. The space prepared for the reception and propagation of plants, in the open ground, already contains more than six thousand species or varieties, many of which are rare: the number of multiples raised in pots, is about 120,000. The portion of the garden devoted to heaths is consi-

dered to be the most complete of any in the environs of Paris. To form some idea of the multiplication of the Ericeæ alone, it may be sufficient to mention that forty thousand *Kalmia latifolia*, were, the preceding year, repricked under glass frames, and four thousand *Azaleas* of more than one hundred and fifty varieties, were disposed in pots for the graft.

Much attention is paid to the nursery department of forest trees, particularly those of North America, that are valuable for timber.

In this same number the chevalier has some excellent remarks on the importance of the statistics of French Horticulture.

The number for May is principally occupied with an account of the celebration at the opening of the Institute, and with the speeches delivered on that occasion, which we should be pleased, did our limits permit, to transfer to our columns.

(*To be Continued.*)

[From the British Farmer's Magazine.]

ART. XCII.—*The Horse in all his Varieties and Uses; his Breeding, Rearing, and Management, whether in Labor or Rest, with Rules occasionally interspersed for his Preservation from Disease.* By JOHN LAWRENCE, Author of "A Philosophical and Practical Treatise on Horses," &c. Small 8vo. p. 315. Longman & Co. 8s.

It is said, that if a person is once attacked by the mania of writing, he ever after remains under its influence. There is no harm in this, if it can be said of him what King George III. said of, or to the great Johnson, that he (the Doctor) "could not write too much, because he wrote so well." The book before us is the last of many others of the same author, and still there is no falling off—still a freshness of diction and gaiety of manner about his descriptions which amuse now as much as they amused and instructed us thirty years ago. He has his fears, however, that his old acquaintance will cry out, "what! again?—can the press squeeze any more excellence out of him?" He very seriously and compromisingly conciliates his friends by the petition—*only bear with me this once;* and, as he is a veteran without any very visible signs of superannuation, we do not see why he should not be heard again and again.

It is impossible that a writer like Mr. Lawrence, who has spent a long life in the study of horses, having a natural regard for the animal, constantly seeing them in all their varieties, and using them for all manner of purposes, can write any thing silly or impertinent concerning them. And though the present work is only a compendium of his former writings on the same subject, it may merely on this account be as acceptable to the generality of readers as were the former.

Where all is very good, it is not easy to say which is best. His directions on breeding, rearing, buying, feeding and using are all sterling; and comprehend almost all that is necessary to be known on the subject. If there be one trait in the writings of this our old preceptor more prominent than another it is his laudable humanity and commiseration of the sufferings of this docile and useful beast. He pleads most earnestly for merciful and gentle treatment in all cases; and heartily condemns the barbarous cruelty of selfish, unfeeling horse masters. This fine feeling he allows to check his ardour even in the high excitement of the chase.

"I have noticed the size of the deer," says he, "and I must own, that the tearing down of the exhausted animal by a pack of hungry and ravenous hounds, has ever imparted to my mind sensations the very antipodes to those of exhiliration and delight; exclusive of the horrible acts of cruelty which I have known to be committed by men more barbarous and stolid than the hounds under their direction."

The following extracts will be fair samples of the value of the author's advice, and of the style of language in which it is conveyed. On breeding, he observes,

"The radical error in our general breeding system, is, that the form and size of the stallion alone is particularly attended to, whilst the form and aptitude of the mare is little considered. Hence, probably, the cause of our notorious and constant scarcity of thorough-shaped horses. In order to produce such, it would seem that there is a necessity for a just symmetry and proportion in both horse and mare; at least as far as regards the most important points. At any rate with regard to those, that which is deficient in one should be made up by the other."—p. 24.

The constitutional defects and ailments of both sire and dam are transferable to the progeny.

"There are," he observes, "certain external and visible defects in the horse and mare, which may be, and often are propagated. The chief of these are splents, spavins, round and gourdy legs, subject to grease and running thrushes; crooked hams, thick, ill-shaped and ill-set heads, imperfect eyes. Good or evil qualities likewise are propagated, and it is not advisable to breed from a restive horse or mare. Saltram, by Eclipse, a horse which ran at Newmarket, when blind, communicated that defect to his progeny; among others, to Sir Charles Bunbury's Whiskey, which being blind himself, got scarcely any foals that retained their sight. Asthmatic or broken-winded mares, with few exceptions, are barren; but age need be no bar to the sound and healthy mare, since good stock has been produced by the aged of both sexes; although the period between five and ten years must be deemed the most favorable.

"In the year 1821, the singular fact occurred in Wales, of a mare producing four colt foals at a birth, all black."—pp. 30, 31.

On colt-breaking the author has the following remarks:

"The COLT-TACKLE for breaking, with the large and mild bit, need no description. The whole of this furniture must be left to the direction of the breaker, and no one can be *au fait* at the business, but a regular, steady, and experienced man, whose first and most important qualification is *unwearied patience;* the next undaunted courage, joined to that indescribable quality which some men naturally possess, of being attractive to animals, and at once loved and feared by them. Accustoming foals to be handled from the teat, stabled, haltered, led, and treated familiarly and kindly, greatly facilitate the first processes of breaking. The colt taken up and rendered familiar with the stable awhile, may, in the next instance, be led about in a halter and made steady in hand. The next process is to bit and caparison him with his full tackle; the saddle having a cross, or something elevated upon it, in order to ac-

custom him to a rider. He is shortly after lunged around a circle, held by the breaker, who stands, whip in hand in the centre. Backing follows in a few days. When colts are first taken to the stable, it is by no means safe to leave them tied up by night, so many accidents have happened from their getting halter-cast."—pp. 32, 33.

His description of the foot of the horse, and his opinion of the signs of healthy feet, deserve attention:—

"The foot of the horse is surrounded and defended in front, sides, and at bottom, by the horny sole, an ungular substance, thicker than the human, in proportion as the animal is larger. The heels partake of the same kind of defence, but of a thinner texture. The foot, being open at the back and not surrounded by the firm sole as in front, is obviously in need of support; and the intervening frog is destined by nature to that office; on which account, and having so large a portion of the general mass to sustain, particularly while the animal is in a state of inaction, it is composed of a very tough and elastic substance. The frog, moreover, serves as a cushion, rest or salient point for the tendon, or *flexor* muscle of the back sinews. The bars or binders are those parts situated between the heel and frog, and which, by a mutual resistance from within, help to dilate and oppose the contraction of the heels. The horny defends the fleshy sole above it, and the internal parts of the foot, from the accidental contact of hard bodies; but from its concave form, appears not to have been intended by nature to bear weight, excepting round the extremities adjoining the wall. The wall or crust of the foot, is the thick edge surrounding it, from heel to heel; it is the bottom of that portion of the sole, which envelopes the front and sides of the foot, set up, as it were, vertically, and thence able to contain nails driven in a vertical direction. This wall then, or rim, is plainly the place on which to fix a support and guard for the foot; for on the wall, and the frog, in a sound and healthy state, the animal naturally bears his weight; and the frog in a sound and healthy state, from its tough and elastic nature, needs no artificial defence. (Philosophical and Practical Treatise on Horses."—pages 47, 48.)

And what he considers to be good signs of a sound and perfect hoof is—

"A dark shining hoof, which would cut solid and tough; an open heel, the binders equally tough, and the frog dry, but of good and growing substance. Briefly, a hoof of whole color, and that by no means of a light color; dry, but not brittle, of uneven surface or wrinkled, and of size well adapted to the size of the horse."—p. 46.

To which he adds—

"If the coronet or coronary ring, surmounting the hoof, be large and swelling, it is a sign of a defective foot."

On this blemish (defective feet) of our horses, he has many excellent observations; among others, he says,—

"But the most general defect in the feet of our English road horses, originating, no doubt, in the universal infusion of southern blood, is the thin and weak hoof and tender crust; the horn not supplying a sufficient growth for repeated shoeing, and the sole not having substance enough to defend and support the internal and sensible parts of the foot. A small, hard, and dry coronet (not, however, the usual defects of these last kinds, but of the deep ass-like hoofs,) may be a cause of lameness and contraction, by acting as too tight a bandage."—p. 53.

After a circumstantial lecture on the art and mystery of blacksmithery, its rise and progress, &c. he proceeds to the stable, and gives a useful view of all that is right and wrong in this department. Of practical improvements, he says—

"The chief, or perhaps only improvement, of which ordinary stables are susceptible, seems to refer to the flooring, or pavement, the draining, the attention to cleanliness and ventilation. The ancients generally floored their stables with stone; but in England, oaken planks laid crosswise were formerly in use. Stone and clinker pavements succeeded, and too often these pavements were equally rough and uneven as the old street pavements of the city of London, on which the miserable animals were made to stand, or lie down if they could, on a bed of torture, not of rest. Dutch clinkers laid perfectly even and level, make the best stable pavement, and a grating and drain in the centre of the stall contributes to keeping it dry, without the necessity of the usual considerable descent from the manger, which places the horse in a forced, unnatural position, his chief bearing being upon his hinder quarters, occasioning his hinder legs to swell, examples of which I have often seen: and Mr. Goodwin observes, in reference to the fore legs I presume, that the horse being compelled to stand with his toes up and heels down, the unusual strain on the muscles of the back part of the leg, and the ligaments of the joints, particularly those connected with the foot, must be productive of serious mischief. These drains or cesspools must, of course, have an outlet from the stable; and could they be made to discharge themselves upon the dungheap or pit without side, it would be a great saving of manure. It would be useless to propose improvements out of the reach of keepers of the class of stables here referred to; beyond that more attention might be afforded to airing them, and a more frequent removal of the dung, too often left in the stall as a substitute for clean straw."—pp. 91, 92.

Respecting the propriety or impropriety of tying up, he says:

"If custom would permit us to reflect, we should be convinced, that a horse, confined by the head, to the small space which he covers, and remaining habitually fixed in such a situation, must necessarily subject him to that variety of disorders resulting from defect of motion, to which we so perpetually see him liable. The sleepy staggers is doubtless often brought on from this cause, joined to high feeding. Thus the loose standing is not only beneficial to hard worked horses, but to those which are high fed and do little, their airings and exercise also being neglected. Those with greased and swelled legs, that perpetually stand when tied up, will be induced to lie down and roll, one of the best remedies in their case, if turned loose into a well-littered and roomy stall. A manger is an incumbrance in a loose stall, and, perhaps, in every other. It must be acknowledged that, standing loose, a horse uses more litter than when haltered; but there is a far more fatal objection, it gives the groom more trouble, an object of superior consideration, in his view, than the benefit occurring to the health of the horse from the exercise of the horse from the exercise of turning, stretching, and rolling.'—*History of the Horse.*"—p. 95.

Recommends for feeding moveable mangers or

drawer principle; upright iron racks placed rather lower than has been customary; binns for hay cut fresh and fresh from the rick, as well as corn; disapproving of the hay being kept in lots, where it is exposed to cobwebs, dust, and the effluvia from the stable. The power of thoroughly ventilating the stables, should always be well studied in their construction; the air holes being above the horse's heads, and close to the ceiling. The Rotunda form, for extensive stabling, with an exterior covered circular shed for exercising in bad weather, is particularly recommended as combining every requisite for the health of the stud, and every convenience in its management.

On feeding, the author says—

"The English STABLE FOOD for saddle horses, consists of meadow hay, oats, white or black, and small or horse beans; the latter when used, in the proportion of a pint or upwards to a peck of oats, or a handful to a feed. Beans, a binding and strengthening food, are, for extraordinary occasions, as to encourage mastication, some horses swallowing their oats whole. Neither new oats nor beans should be used, as they loosen and scour the horse; should it be necessary to use such, they should be previously kiln dried. White peas are occasionally substituted for beans, chiefly, I believe, in the running stables. A small quantity of the chaff of hay mixed in a feed of oats, is often found useful. Short, plump, heavy oats, as free from husk as they can be procured, and perfectly sweet, are cheaper at the extra price, than the light and ordinary samples; three quarters of a peck of the one will impart more strength to the horse, than a peck of the other; that, suppose the keeper of a hack allowed him but three quarters of good corn per day, the nag would be more thankful to him for that allowance, than for a peck of the light and chaffy, musty and ordinary species. I incline to think, that white oats, as well as in price, are higher in value, than black. I tried ground corn for cart horses during several years, but could perceive no advantage from it; it can only be necessary for horses unable to masticate."—p. 108.

Purchasing.—On this head Mr. Lawrence is an excellent monitor. Real good things are always scarce. Much caution and judgment necessary in making a choice. Buy not of a friend.

"A buyer of horses, particularly if not quite *au fait* at the critical business, should have in ready memory and his mind's eye, a list of their possible and too common defects, with a quick sense of the old *caveat emptor*. Here, then, I again present them to the reader, from my old treatise, in the ancient slang of the stables, not yet become obsolete, with some additions:

Abrupt setting on of the head. Cock-throppled, or crest-reversed, the substance of the neck being placed below. Shoulders of insufficient compass, depth and substance, or upright, instead of declining towards the waist, or gross and heavy. Legginess, or too great length of leg. Round and fleshy legs. Deficient muscular substance in the thighs and fore arms, or those too loaded with flesh. Girth too narrow in proportion to the size of the horse. Want of width and substance in the loins, frequently with the appearance of a sinking or cavity across the fillets. Deficiency of width, or extension of the hinder quarters; the hinder approaching nearer to each other than the fore feet. Want of substance in the leg bones. Crookedness in the hocks and pastern joints, or sickle-hammed. String halt, or catching up of the hinder legs. Going hammer and pincers together, or over-reaching. Faulty position of the foot, from crooked pastern joints, the toe being either turned outward or inward. Soft and delicate, white, or party colored, wrinkled, or broad and flat, or deep ass-like hoofs, with narrow heels, and deficient frogs. Dead hair, sadness, and dull eyes, the *indices* of impending rottenness. Fetid discharge from the nostrils. Defective wind."—pp. 125—127.

These particulars being kept in mind, the examination follows:

"Having already been made acquainted with the terms, and that the nag is quiet to approach, giving him some gentle warning with your voice, you go up to him in his stall, on the near (left) side, and laying your hand on his forehead (touching his height,) you proceed from thence to examine his eyes, mouth, and countenance; still holding his head, and turning your own to the right about, you have a view of the curve of his neck, the height of his forehead, the position of his shoulder, and the substance of his forearm. Returning to his forehand, you descend to his legs and feet, minutely examining with your fingers, every part, from above, below, withinside, and without. You will not forget the virgin integrity of the knees, so much and so justly in request; so difficult is this to repair, either by nature or art, when once violated, that I am almost tempted to add it as a fifth, to the four irrevocable things, *tempus, juventus, verbum dictum, et virginitas.*

"Being satisfied respecting his foretrain, your eye and hand will glance over his back, girting place, carcass and loins; thence proceeding to his hinder-quarter, and the setting-on of his tail. You will judge how far he agrees in each and every respect with those rules of proportion already laid down. The hinder legs and feet will demand a share of attention, full as minute as the fore ones; and I must once again repeat my advice, that the inside or hollow of the hock be not passed without due notice, as is commonly the case; since it often happens, that the injuries of hard labor are most apparent in those parts. A survey of the other side of the horse concludes the stable examination.

"Suffer no person belonging to the seller to be with you in the stall (unless you know and are well satisfied with the dealer's character) during your inspection, that the horse may not be rendered unquiet, either designedly, or at the mere presence of a habitual tormentor."—pp. 130, 131.

To this is added a code of instructions on horse-dealing; with an *exposé* of the various arts practised in that occult portion of human lore.

Then follows a history of repositories, marts, &c. in town and country—law of warranty—directions for riding, both to male and female practitioners—treatment of roadsters, concerning which he says—

"Leaders should be fast trotters, for fast coaches. When they are galloping, the bars are never at rest, consequently much of the draught is lost in the angles they describe."—p. 210.

He marks the follies, points out the dangers, and ridicules the extravagancies of the chase. Thence he proceeds to the turf, of which he gives a history of its ancient and modern abettors—horses famous in its annals—their origin, pedigree, powers, &c. &c. reiterating much of his previously published opinions on the subject. But upon the whole, the work will be an amusing and useful manual for all young owners of

pleasure-horses, who may wish to acquire a general knowledge of equestrian exercises,—who are fond of speaking of such feats, and ambitious of shining in conversation either in the stable or at the festive board after a hard day's run.

ART. XCIII.—*Shape and properties of the Bull.*

There is a grandeur about this animal when at full maturity, and in good condition, which is very striking; but as some noble looking animals have very bad points about them, it will be as well for the benefit of persons who have not much experience on the subject, to give a brief account of what are deemed to be distinguishing points in a perfect animal.

From two to seven years old he is in his prime; after that period he begins to decline in vigor; his back should be perfectly straight and broad on the loins; the tail falling gracefully from the curve of the rump, well knit together, but rather fine than coarse: the head not coarse boned, but symmetrically formed, bearing all the marks of strength and good breeding: the horns fine and long, rather than thick and short; above all, perfectly clean and polished, having no rough scaliness about the roots: the forehead ample, bearing fine curly hair, indicative of his nature: the ears hairy, yet of a fine texture; the eyes black and commanding: the muzzle tapering, and the neck gracefully connecting the head and the body, bearing all the strong indications of his sex, without being in any way coarse and leathery: the body should be well formed, deep without being pot-bellied, and rising from the just position of the ribs, into a round barrel like shape: the hide mellow, and covered with abundance of short curly hair: the legs well separated to sustain the carcass, and clean boned. A bull contra-distinguished from one thus formed, will have a large pot-bellied body, coarse, scaly, thick horns, bony, unseemly head; short, thick muzzle: a neck covered with a heavy leathery skin, extending to his fore legs, and these, with the hinder ones, long-jointed, and thick boned: the skin will cleave to the body, and together with the ears and tail, will want that fineness of texture which denotes good breeding.

A bull calf intended for breed, should receive the most particular care: his mother should have the greatest abundance of food, and should suckle him till the fall. For this purpose, after he is four weeks old, he should be kept in a little paddock or enclosure, where there is plenty of fine grass, and his mother led into him three times a day: a little water should be occasionally given to him in times of drought; he should also be taught to drink from the first, as it may be necessary to raise him by hand in case of accident; by attending him in this manner he will soon acquire habits of docility. In the winter a comfortable birth should be provided for him, as much as possible to himself: he will soon learn to eat turnips and boiled potatoes, which should be given to him in moderate quantities at a time, as also his hay, which should be fresh and early cut: he should be watered at least twice a day with moderately cold water, it being very injurious to animals to let them drink only once in the twenty-four hours, and then from a cold freezing source. Where it can be conveniently done, it is best to let animals drink when they choose. When fine weather returns, he should be conducted back to his old paddock, or a place equally convenient; and if it is thought proper to breed moderately from him the first season, the cows should be turned in to him one by one, as they come into season. A bull calf of that age, should only be permitted to serve one a day, and not more than ten or a dozen the first year. Some experienced men are of opinion, however, that the stock degenerates which is produced by so young an animal. As it respects yearling bulls in general, this may reasonably be supposed true; but animals raised with the attention which has just been detailed, attain such size and condition at fourteen months old, that there can be no doubt of their possessing that degree of puberty which warrants a moderate use of it. The difference of climate betwixt this country and Great Britain makes a sensible odds as to all regulations in these matters.

It is the general practice, I believe, in this state, to exact no other service of bulls than breeding, and this does not seem accordant with a just economy of things. When bulls are reared in a proper manner, they are generally extremely docile, and since those particular services ought never to be required of them after the month of July, there probably exists no good reason why they should not be moderately worked as well as oxen. The habit of letting them run in pastures after this season only encourages the ferocity of their nature, and makes them dangerous, when they ought to be useful. In Pennsylvania it is very common to use bulls for labor, and the experiment has been successfully tried in other countries; they are considered equally as strong, and more hardy than oxen, resisting heat better, which is of great importance in this hot climate. I have seen a bull worked throughout the summer in the same team with an ox, by a professional stone wall layer, who informed me that the bull was always equal to his work, when the ox would begin to loll and give indications of failing under the heat.—*Memoirs' Board of Agriculture.*

ART. XCIV.—NATURAL HISTORY.—*Respiration of Animals.* [Continued from page 98.] By the EDITOR.

Among the instances of the admirable wisdom and great economy exhibited in the physical world, is the innumerable purposes to which the atmosphere is adapted. In its motions it serves to fan and enliven the animal and vegetable kingdoms, to waft across the azure deep the whitened canvass, and to float along over the land the morning vapours and the gathering clouds. As a medium for the transmission of other substances, it conveys to our eyes the glorious light of the 'powerful king of day,' the playful beams of the 'sweet moon' and the twinkling of the starry hosts—and to our bodies it transmits the cheering warmth of the fireside, and widely diffuses to man, beast and plant, the life-giving heat of the sun. Taking it in its combinations, and when decomposed by the organs of 'living things,' it is the mania, cordial, and balm of all life.

The air we breathe is composed of two elastic gasses called oxygen and nitrogen, or azote, 23 parts by weight of the former, and 77 of the latter in every hundred parts. A small portion of carbon is also always found in the atmosphere. When inhaled into the lungs the air is decomposed, and a part of the oxygen unites with the blood and changes its color to a bright scarlet. A part of the oxygen, all the nitrogen, and

an additional quantity of carbonic acid gas, are exhaled. The two last, when not combined with oxygen, are not respirable, causing instant death. Carbonic acid gas being heavier than the atmosphere, often settles in wells and proves the destruction of those who incautiously descend them. Hence confined and crowded rooms are unhealthy. Stables and enclosures for horses and cattle, not properly ventilated, are very injurious, particularly in warm weather. A full grown person respires 48,000 cubic inches in a minute, or 1,152,000 in a day, equal to about 79 hogsheads. The quantity of solid carbon or charcoal in the carbonic acid gas emitted from the lungs in 24 hours, is estimated by Lavoisier to be eleven ounces.

Animals, having warm blood, respire more than the cold blooded. The circulation of the blood and respiration are mutually dependent on each other.

The respirable organs of birds are differently arranged from those of the mammalia. By means of membraneous sacks, or bags, air is transmitted from the lungs, which are attached to the ribs, to every part of the body, even to the cavities of the bones; and hence the bones of birds are light, white, and free from bloody matter and marrow in their cavities. In proportion to their size, birds consume more air than quadrupeds.

Reptiles do not respire as regularly as the higher order of animals. Tortoises have been known to live more than a month with their jaws closely tied, and their nostrils filled with sealing wax. These and frogs do not respire, but seem to swallow the air.

Every portion of water contains air, and hence as it passes through the gills of fishes, it is somehow disengaged, and is respired by them. The change produced on the air is the same as by warm blooded animals—hence fishes cannot, without injury to their health, be kept in a small quantity of water a long time. They must, also, have access to the surface of the water for an additional supply of air. Fishes die in shallow rivers, when frozen so that they cannot get to the surface.

If a fish is put into a vessel partly filled with water, and the air exhausted by an air pump, it will soon expire in convulsions.

By the means of tubes, or canals called tracheæ, air is conveyed to different parts of the body of insects. The long or rat-tailed worms, place themselves at such a depth of water that they can reach the surface with their tail, through which they breathe.

Plants breathe through the pores of their leaves, and have the power of decomposing air the same as animals.

(To be Continued.)

[From the New England Farmer.]

ART. XCV.—*Structure of the Plough.*

MR. FESSENDEN,—From experience, and from the best information I can obtain upon the subject from experienced men, I am satisfied of the following facts, viz.: that the detached, or knife coulter, set so as to cut two inches in advance of the point of the plough, and half an inch clear of the land side, so as to leave the land as smooth and even as a plank, requires one fourth less power of draught than the best lock-coultered plough. And that the Hitchcock Patent Ploughs, leave the land in a much more loose and friable condition than any other. So much so, that we consider it equal to a light harrowing: consequently its work is one fourth better.

Now a good plough on many farms will turn 400 acres; on any farm 200. The customary price for a good plough is 75 or 50 cents per day, and an acre is a day's work on an average. Now 200 acres at 50 cents per acre is $100, the saving of one fourth of this in draught is $25; the work one fourth better is $25 =$50. Therefore, I say, that the Hitchcock plough with the knife coulter, is worth $50 more than one of the old ploughs. But as this estimate of 25 cents per acre, may be said to be too high, put it at 5 cents per acre, 200 acres would amount to $10; from this it appears that we may as well give $10 for the Hitchcock Plough, as to take an old fashioned one as a gift, or perhaps it would be as well to get the Hitchcock Plough and try it, and in the mean time, set the old plough up on the wall in some airy place to dry, in order if the others prove as good as they are recommended to be, that we may follow the example of Elisha, the son of Shaphan (when the prophet Elijah found them ploughing with twelve yoke of oxen,) which was to burn them up.

One more fact and I am done. In regard to shares, we calculate that if we break one the first day it is used, and wear out another, and so on, through a year's work, breaking one half of the shares and wearing up the other, (the shares at 50 cents each,) the cost expended in a given time will not exceed the blacksmith's bills for that time, to say nothing of travel and attendance.

Yours, J. MEARS.

Dorchester, April, 1830.

[Improvements having been recently made on the Hitchcock Plough, and being manufactured by Messrs. Freeborn & Hitchcock, 183, Front-St., New-York, at prices very considerably reduced, we consider it the most economical, and best the farmer can buy.—*Ed. N. Y. Far.*]

ART. XCVI.—*Feeding Cattle—Summer and Winter Food.* By G. SINCLAIR.

The requisites for fattening stock are the superior breed or variety of species of the animal, and the superior quality of the food. The adjuncts or essential accessaries to these, are, the purity and temperature of the air to which the animal is permanently exposed; the purity and freshness of the water; the means of moderate exercise; permanency of repose, and cleanliness, to which may be added the judicious serving of the food.

The production or increase of *fat* and that of *muscular fibre*, is greatly under the influence of art; the former is well known to our skilful graziers, and the latter to our celebrated breeders and rearers of the best horses, whether for the field or the turf. The health of the animal must in either case be promoted; in the former, by a debilitating stimulus, (if I may be allowed the expression,) and in the latter, by a direct stimulus to the vital functions. All the principles of practice in *feeding* above alluded to, apply to each intention,

but require the aids of science and practical skill in modifying their application, so as to obtain in perfection either of the desired purposes.

To enter into an useful discussion of the details of these interesting facts, would be inconsistent with the limits of this communication, and my circumscribed time and abilities for so important an inquiry. I beg to express a hope, however, that some one more competent to the task will take the subject up and discuss it, as its high interests to science as well as to successful and correct practice demands.

The superior quality of the food appears to be next in importance to that of the breed of stock, and on this point I beg permission to offer a few observations. The natural food of graminivorous animals, as the ox, horse, and sheep, in summer, consists of herbage in a green and succulent state, and in winter in a drier state, or of partially withered leaves. The distinguishing characteristics of these two states of the food are, the greater quantity of water in that of summer, in proportion to the solid fibre and nutritive matter of which it is composed, and the proportion of the constituents, viz. saccharine, mucilagenous, albuminous, bitter extractive, and saline substances, of which the nutritive matter consists.

It need not here, except for the sake of clearness, be observed, that the healthy process of animal perspiration is greatest in summer, when the natural food is most succulent, and least in winter, when the food is driest, and that the nutritive matter of the food produced in summer affords a much larger proportion of saccharine matter in proportion to the bitter extractive and saline matters contained in the winter herbage. It is also well known that the diseases of stock are more frequent and fatal in winter, or early in the spring, than in summer. The following facts will, in some measure, show the difference between summer and winter food as afforded by nature to stock, and also the properties of artificial food, as turnips and mangold wurtzel, employed to hasten and forward the processes of nature in the production of *fat* and muscular fibre, or the fattening of the more valuable domestic animals.

	Composition of Summer Food. In 1 lb. weight of Green Herbage,									Composition of Winter Food. 1 lb. weight of hay, or dry herbage,								
	Water.			Dry Fibre			Nutritive Matter.			Water.			Dry Fibre			Nutritive Matter.		
	oz.	dr.	qr.	oz.	dr.	qr.	oz.	dr.	qr.	oz.	dr.	qr.	oz.	dr.	qr.	oz.	dr.	qr.
Anthoxanthum odoratum, Sweet-scented vernal grass	11	6	3	4	1	1	0	8	0	0	0	0	15	0	2	0	15	2
Dactylis glomerata, Round-headed Cocksfoot grass	3	14	0	6	11	2	0	6	2	0	0	0	14	10	3	1	5	1
Alopecurus pratensis, Meadow Foxtail grass	11	3	0	4	2	2	0	10	2	0	0	0	13	0	1	2	3	3
Poa trivialis, Common Meadow grass	11	3	1	4	4	3	0	8	0	0	0	0	14	5	2	1	10	2
Festuca pratensis, Meadow Fescue grass	8	6	0	7	2	2	0	7	2	0	0	0	13	10	0	2	5	3
Cynosurus cristatus, Crested Dogstail grass	11	3	1	4	3	0	0	10	0	0	0	0	13	15	0	2	1	0
Festuca durinscula, Hard Fescue grass	8	13	0	6	14	0	0	5	0	0	0	0	14	0	0	2	0	0
Holcus avenaceus, Tall oat-like soft grass	9	11	0	6	0	0	0	5	0	0	0	0	14	5	2	1	10	2
Bromus mollis, Soft Brome grass	No summer herbage afforded by this bad grass.									0	0	0	14	8	0	1	8	0
Avena flavescens, Golden Oat grass	10	7	0	5	4	0	0	5	0	0	0	0	13	3	0	2	13	0
Holcus lanatus, Woolly soft grass, Yorkshire fog	10	13	0	4	13	0	0	6	0	0	0	0	3	11	0	2	5	0
Phleum pratense, Meadow Catstail, Timothy	10	0	0	5	6	0	0	10	0	0	0	0	12	14	0	3	2	0
Lolium perenne, Perennial Rye grass	9	4	0	6	3	0	0	9	0	0	0	0	14	8	3	1	7	1
Trifolium pratense *perenne*, Perennial Red clover	11	0	0	4	6	0	0	10	0	0	0	0	13	11	2	2	4	2
Trifolium repens, Creeping White clover	11	8	0	4	0	0	0	8	0	0	0	0	14	3	3	1	12	1

Also, agrostis stolonifera, briza media, poa annua, poa pratensis, phleum pratense minor, hordeum pratense, aira flexuosa, aira cæspitosa, with lathyrus pratensis, lotus corniculatus, and trifolium minus, are more or less also found in natural meadows.

The above will be found to constitute the principal ingredients of natural pastures, and of hay of a *medium quality*. The hay, in general, called old meadow hay, which I have frequently examined as brought for sale to the Haymarket in London, is composed of these grasses, although of course varying occasionally in the proportions of the different species according to the soil which produced it. That a judicious selection of the different species of grass now enumerated would give a very superior quality of hay, and consequently of pasture, is certain; but that is not now the question, they are here stated as the component parts of hay in general, the natural food of stock in winter, as regards the first step of art in assisting and forwarding the processes of nature, in the increase and *preservation* of food for the more valuable domestic animals in winter, or in that season when their instinct is put to the severest exertion to obtain the means of existence. The Almighty in his infinite wisdom makes it therefore, the interest of man to exert his intelligence in accumulating and preserving food for the inferior or more valuable domestic animals most dependent on his care.

Every pound weight of white globe or the Norfolk turnip, contains upwards of three-fourths of a pint of pure water, and when the season of the year is considered in which turnips are eaten by sheep, there can be but little doubt, that the existing cause, at least, if not the origin, of many fatal diseases, as the *rot*, *red water*, &c. is to be traced to the excess of water in the winter food of the sheep. An allowance of dry food, as hay, or even good straw, with winter bulbs, to the amount of a pound or two a day, would be found very beneficial in correcting the bad effects of the *watery* food which that otherwise invaluable root, the turnip, affords. Mangold wirtzel is equally objectionable, as a food given without any drier substance. Swedish turnips are much less objectionable.

If a shelter could be afforded to sheep on folded turnips, and a portion of dry food served with them, the benefit would doubtless be great. A moveable *pentshed*, with one side weather-proof, and which could be moved at pleasure, according to the stormy point of the weather, would insure all the benefits which the valua-

ble root in question is capable of affording, by bringing it closely to the properties of the natural food of the sheep. It is with the greatest deference to the superior judgment of the enlightened farmer that I submit these observations.

ART. XCVII.—*Prohibitory Duties.—Report of the Committee on Commerce and Navigation to the House of Representatives.—French Commercial System.* [Concluded from page 84.] By the EDITOR.

We have thus gone through Mr. Cambreleng's Report, and given the principal facts and arguments. He has made this very clear, which every body knew before, that the country suffers from the depression of trade. England, France, and almost every commercial nation in the world is in the same condition. To remedy these evils, Mr. C. tells us we must take off our restrictions and have free trade. That these restrictions do and will often require a modification to suit circumstances, there is no doubt; but that the effects of the unlimited repeal, which Mr. C. appears to advocate, would be beneficial, time and experience alone will demonstrate. If it is true that the permanent prosperity of this country depends on a full and flourishing commerce, it is also true that the legislature of our country has not control over all the circumstances effecting foreign trade. It is idle, therefore, in the present state of nations, to talk of obtaining an uninterrupted commercial outlet to the immensely varied products of our country, when every commercial law we make is subject to a counteracting one in other countries. Mr. C. closes his remarks with the sentiments advanced on this subject by Mr. Jefferson, in 1793. We cannot think the restrictive system, having for its object the exclusion of foreign products, or making nations independent of each other, is at all compatible with the progression of mankind in arts, science, civilization, and religion. We fully coincide with Mr. J., and believe the world is now in a far more favorable condition for the promulgation of such sentiments than at any period since he uttered them.

"There can be no doubt," says Mr. Jefferson, "but that, of these two, friendly arrangements is the most eligible. Instead of embarrassing commerce under piles of regulations, duties, and prohibitions, could it be relieved from all its shackles, in all parts of the world; could every country be employed in producing that which nature has best fitted it to produce; and each be free to exchange with others' mutual surpluses for mutual wants, the greatest mass possible would then be produced of those things which contribute to human life and human happiness: the numbers of mankind would be increased, and their condition bettered.

"Would even a single nation begin with the United States this system of free commerce, it would be advisable to begin it with that nation; since it is one by one only that it can be extended to all. Where the circumstances of either party render it expedient to levy a revenue, by way of impost, on commerce, its freedom might be modified, in that particular, by mutual and equivalent measures, preserving it entire in all others.

"Some nations, not yet ripe for free commerce in all its extent, migh be willing to mollify its restrictions and regulations for us, in proportion to the advantages which an intercourse with us might offer. Particularly, *they may concur with us in reciprocating the duties to be levied on each side*, or in compensating any excess of duty by equivalent advantages of another nature. Our commerce is certainly of a character to entitle it to favor in most countries. The commodities we offer, are either necessaries of life, or materials for manufacture, or convenient subjects of revenue; and we take in exchange, either manufactures, when they have received the last finish of art and industry, or mere luxuries. Such customers may reasonably expect welcome and friendly treatment at every market. Customers, too, whose demands, increasing with their wealth and population, must very shortly give full employment to the whole industry of any nation whatever in any line of supply they may get into the habit of calling for from it."

In a recent number of the *Edinburgh Magazine*, is a long article on various publications in France on the French Commercial System. We will very briefly state the substance of the review.

It is well known that Bonaparte was a great advocate for the restrictive system, and did all in his power to make France independent of other nations for the products of the soil, and for manufactures. The same system is now continued. It becomes, therefore, says the reviewer, of the greatest consequence to inquire into the actual results of this system. Are the manufactures and commerce of France in a flourishing condition? Have the people a ready market for their produce? Are they, in these respects, satisfied with their condition? The reviewer answers all these in the negative. For the want of a market for their wine, brandies and silk, the southern part of France particularly experiences great distress. The principal merchants of Paris, Bordeaux, and other great towns, and a vast many of the agriculturists, have petitioned for a repeal or modification of the prohibitive system. From 1790 to 1814, the duty on iron was two francs per quintal (220 lbs.) Owing to the great demand for implements of war, the manufacture of iron was considerably extended. On the return of peace, to protect the iron manufactures, the duties were raised to fifteen francs. But this was not sufficient; in 1822, they were increased to 25 francs, making 1136 per cent. since 1814.

In 1814, a discriminating duty of 20 francs per quintal was laid on sugars imported from any country, except the French islands of Martinique, Gaudaloupe, and Isle de Bourbon. These duties were several times raised until in 1822 they were fixed at 45 francs per quintal on sugar from French colonies, and 95 francs on that of foreign growth. These high duties were to encourage the manufacture of sugar from the beet root. The above French islands produce from 2500 to 3000 kilogrammes per hectare. Other West India Islands, Cuba and Porto Rico, owing to their superior fertility; will produce more than double the quantity. By these prohibitory measures, France is independent of other nations for this article; but it is at an additional expense to the consumers of 6 or 7 millions of dollars annually.

The Swiss had long been in the habit of sending lean cattle into France, until 1814, when, to promote the interest of land owners, heavy duties were by the French imposed. In retaliation, the Swiss laid prohi-

bitory duties on French wines; and thus these two sources of mutual trade were principally cut off.

The manufactures of iron have been protected by very heavy duties; but still they are in trouble. Owing to the great quantity of charcoal consumed in the furnaces, this article has so much advanced in price as to leave no profit to the iron masters. This useful metal is from 25 to 50 per cent. higher than can be imported for, and the indispensable article of wood has advanced 25 to 50 per cent.

Most other branches of trade are shown to be in a similar condition, but our limits will not permit a further detail. Some of them may be said to flourish and increase, but it is by artificial means: the least reduction of duties would produce ruin.

In conclusion, we would observe, that general education, skill and enterprise, are the best protecting duties; that restrictions on trade should be on the principle of accommodation to existing circumstances, or of counteracting foreign regulations, and not with a view of building up an artificial system that will ever require the props and fostering care of legislation to save it and the nation from ruin; that it comports with the most extensive views of human happiness to increase the facilities of intercourse among nations; that the tendency of all those means by which the physical and moral condition of man is promoted, is to assimulate mankind in manners, habits, and views, and thus to unite them into one great patriarchal family, under the government of their Father which is in heaven.

ART. XCVIII.—*Horticultural and Botanical Establishments in the vicinity of New-York, with Remarks, Historical and Descriptive.* By the EDITOR.

At the suggestion of some of our patrons, we intend to devote a portion of our periodical to a review of the different Horticultural and Botanical Establishments in the vicinity:—to visit them at intervals during the season of Fruits and Flowers, and to note whatever we may observe novel or interesting.

We trust that in so doing we shall oblige our friends in different, and particularly in remote, sections of our country, keep alive that spirit of emulation which so happily exists among the practical Horticulturists in the vicinity, as well as incite to action those denominated patrons of the Science, who, to a great deal of the theory, unite (unfortunately for the commercial horticulturist) but little of the practice. An apology is perhaps necessary for intruding the names and labors of individuals before the gaze of the public eye. An ardent desire for the improvement of practical Horticulture is the only one we have to offer, and we trust that, with the assiduous cultivator, it will be amply sufficient.

With this intention we have, since the commencement of the present season, visited the different nurseries in the vicinity, many of the private gardens of the opulent and the most celebrated of those usually devoted to supplying our markets with vegetables and fruits.

We shall continue these visits during the summer, and intend, in the first place, to give a short description of each; we commence accordingly with

The Horticultural Establishment of Michael Floy, at Harlem, and at the corner of Broadway and 12th-street.

This is the oldest establishment of the kind on the Island, the present proprietor having succeeded Williamson, who was advantageously known as a nurseryman so long back as 1798. Since it has been in the possession of its present proprietor, its reputation has neither retrograded, nor remained stationary, and owing to the many alterations and improvements (!) made in the city it has been thrice removed. It is now, however, permanently located at Harlem in the 12th ward of the city, on a piece of land, to which we know not where its superior or equal is to be found for the purposes for which it is intended. The area is a parallelogram of 10 acres, the longest line running from East to West. It is bounded on the North and South by 125 and 128th streets, and on the East and West, by the fourth and fifth avenues. The soil is light and warm, and it is surrounded by some of the most elegant picturesque scenery on the island. Our first visit to this spot was on the 20th of last April; our readers may probably recollect with what amazing rapidity vegetation advanced about that period. The weather during the first part of the month had been moderate and seasonable, but from the 9th to the 20th we had a succession of what was not inaptly termed Summer Weather; and on our arrival at the Harlem Nursery we were agreeably surprised at finding that there were, even at that early period, a great number of beautiful, indigenuous, and exotic plants in bloom.

We noticed, particularly, two varieties of our native delicate flowering Dodecatheons, the scarlet currant from Missouri with its delightful fragrance, the Cercis, leafless, but loaded with blossoms, the Kerria, (formerly corchorus) japonica, with its flowers of gold and the delightful Daphne mesereum had pushed forth their blossoms and proclaimed to their more tardy companions that Spring, budding, blossoming, joyous Spring was at hand. So great was the contrast between the bustling scenes of every day life in the city, and the placid beauty and tranquillity of this delightful spot, that we were forced almost involuntarily to paraphrase the verse now quoted for the thousandth time,

O fortunati sua si bona norint Ruricolæ!

The principal purposes for which the Harlem Nursery is intended are the rearing of fruit or hardy ornamental trees, and shrubs; a portion is also devoted to raising Garden seeds, which are here grown annually in great quantities, and are sold by wholesale as well as retail at the Seed Warehouse, in Broadway, of which we shall have occasion to speak more fully hereafter. The collection of Fruit Trees is extensive and embraces nearly every variety worth cultivating. There is also a great variety of Flowering Shrubs, and Ornamental Trees, which our limits will not allow us to particularise more fully at present; we must notice, however, the healthiness and vigor with which every thing appeared, and which speak loudly of the skilful management of the proprietor.

In addition to the general neatness and accuracy of every thing pertaining to this establishment, two things struck us as peculiarly worthy of notice and imitation.

The first, and which we consider of great importance, is the determination strictly adhered to, of keeping "no kind of fruit *that is not good, however pompous and imposing the name may be;* nor will any pains be spared to procure such as are of approved worth whenever they may occur either at home or abroad." (*Pref. to the Harlem Nursery Cat. Edition*, 1830.) This is really worthy of general imitation, as some catalogues of Fruits have been swelled to such an immod-

erate size, that persons desirous of obtaining good Fruits, are, instead of being benefitted or assisted by the multiplicity of names, "perplexed in the extreme." Let our Nurserymen throughout the country follow this example, and banish from their collections every fruit that does not really possess *one* good quality.

"There are probably not half so many distinct sorts as there are names in use, *and of that half* most likely *two thirds are not worth cultivating.*" *(Loudon in Enc. Gard'g.*

Another thing worthy of imitation in these "Hard Times," is the charge for new varieties of Fruit Trees. We quote from the Preface to Mr. Floy's Catalogue of 1830. "It has been common with Nurserymen to charge a high price for new kinds of fruit trees; we shall put them at the same price in general as the old ones, as it is not more difficult to inoculate or engraft a new kind than an old one, and the superior sorts can be produced on the same ground and with the same facility as the inferior."

To the exertions and skill of Mr. Floy, the horticultural community is indebted for the introduction of many esteemed varieties of Fruits. We have space to mention only a few of them.

The Washington Plum, the celebrity of which is so great that more trees are cultivated of this variety by Nurserymen throughout our country than of any other. It has lately been figured in the Pomological Magazine, and maintains a high reputation in Europe.

The *Serrated Emperor of Russia*, and *Aster* Peaches, were raised from seed by Mr. Floy, and are highly esteemed varieties. The only medal, which, as far as we know, has been awarded to any Nurseryman in this country, for a new Fruit by the Horticultural Society of London, was received by Mr. Floy in 1823 for his celebrated seedling apple—*the Ortley.*

As a writer on subjects connected with gardening, Mr. Floy's reputation ranks high. He is the author of a clear and lucid description of American Fruits published in the Transactions of the Horticultural Society of London, and of a number of essays on practical and theoretical Horticulture, which have appeared in this paper, in the New-England Farmer, and in the Southern Agriculturist.

We come next to speak of the Green Houses and Seed Store attached to this establishment. They are located in Broadway on a piece of land between 12th and 13th streets.

The Seed business is conducted on an extensive and liberal scale, and from the fact being generally known, that the seeds are raised by the proprietor himself, they are in considerable demand both for exportation and home consumption.

The Green houses embrace not a very large but a neat and handsome collection of Plants, and it is here that the greatest variety of the *Camellia japonica*, is to be found, the cultivation and propagation of which appear to have been thoroughly investigated and understood. Our readers will bear in mind the Figures of two of Mr. Floy's splendid seedlings, which appeared in former numbers of the New-York Farmer. The admirers of this "*Queen of Flowers*" should weave a wreath for him who first produced an American seedling, rivalling in beauty any of the European or Asiatic varieties, and *surpassing* many of them. So great has been Mr. Floy's success in raising new varieties of the camellia, that, during the season of their flowering in the winter of 1829, 30, his house of Seedlings presented above twenty distinct sorts in flower at one time, all varieties, which, it will be born in mind, were raised from impregnated seeds of the old kinds, and not one of which could be found in any other establishment in the world. In addition to those that have already flowered, Mr. Floy has above 500 Seedlings of different ages, many of which are of great promise, and we anticipate the day as not far distant when they will be in demand by florists and amateurs of the different nations of Europe. Our article has already extended itself to a greater length than we anticipated, and we must defer our notices of other places to future numbers.

ART. XCIX.—*Of the Varieties of the Hog.*

1

The domesticated European variety of the common hog *(fig.* 1.*)* is too well known to require any description.

2

The Chinese hog *(fig.* 2.*)* is distinguished from the common, by having the upper part of its body almost bare, its belly hanging nearly to the ground; its legs are very short, and its tail still more disproportionately short. The flesh of this variety is whiter and more delicate. The color is commonly a dark grey. It abounds in China, and is diffused through New Guinea, and many islands in the South Sea. The New Hebrides, the Marquesas, the Friendly and the Society Islands, possess this animal, and cultivate it with great care, as it is almost the only domestic animal of which they can boast. The varieties of hog cultivated in Britain, are partly the result of climate and keep in the European variety, and partly the effects of crossing with the Chinese. At the same time, it is only in particular districts that so much attention has been paid to this animal, as to give rise to any accurate distinction of breeds; and no where has it received any considerable portion of that care in breeding, which has been so advantageously employed on the other animals of which we have treated. Yet, among none of the varieties of those is there so great a difference as among the breeds of this species, in regard to the meat they return for the consumption of a given quantity of food. Some races can with difficulty be made fat, even at an advanced age, though fed from the trough with abundance of such food as would fatten any other animal; while others contrive to raise a valuable carcase out of materials on which no other creature could subsist.

The Chinese race, according to Culley, has been subdivided into seven varieties or more; and it would be easy to point out twice the number of as prominent distinctions among the sorts in the third class. But such an affectation of accuracy is as useless as it would be tedious. One general form, approaching to that of other animals kept for their carcase, ought certainly to be preferred; and the size, which is the other distinguishing characteristic, must be chosen with a view to

the food provided for their maintenance, and not because it is possible to raise the individuals to a great, and probably, unprofitable weight. The fineness of the bone, and the broad, though also deep, form of the chest, denote in this as in the other species, a disposition to make fat with a moderate consumption of food; and, while it may be advisable to prefer the larger breeds in those places where bacon and flitches are in most demand, the smaller breeds are most esteemed for pickling, and are, beyond all doubt, most profitable to those farmers who allow them little else than the range of the farm-yard, and the offals of the kitchen.

3

The *Berkshire breed (fig. 3.)* is distinguished by being in general of a tawny, white, or reddish color; spotted with black; large ears hanging over the eyes; thick, close, and well made in the body; legs short; small in the bone; having a disposition to fatten quickly; and when well fed, the flesh is fine. Berkshire has been long famous for its breed of swine, which, as it now stands, is, in the third class, in point of size, excellent in all respects, but particularly as a cross for heavy, slow-feeding sorts. It has extended itself from the district from which it takes its name, over most parts of the island; is the sort mostly fattened at the distilleries; feeds to a great weight; is good for either pork or bacon; and is supposed by many as the most hardy, both in respect to their nature and the food on which they are fed.

4

The *Hampshire breed (fig. 4.)* are large, longer in the body and neck, but not of so compact a form as the Berkshire; they are mostly of a white color, or spotted, and are well disposed to fatten, coming up to a great weight when properly managed in respect to food. Lawrence says they are generally dark spotted, some black, of a longer and flatter make than those of Berks, ears more pointed, head long and sharp, resembling the Essex.

The *Shropshire breed* is another large breed of hogs, which are found valuable where the keep is in sufficient abundance for their support. They are not so well formed as those of the Berkshire kind, or equal to them in their disposition to fatten, or to be supported on such cheap food. The standard color of this breed is white, or brindled: Shropshire has long bred stores for the supply of the London feeders, and of the Essex farmers, who thus turn their clovers to the most profitable account.

The *Gloucestershire breed* is likewise a larger breed, but inferior to either of the above, being tall and long in shape, and by no means so well formed. The color is in general white. It has two wattles hanging from the throat.

5

The *Herefordshire breed (fig. 5.)* is also a large useful breed, but perhaps without possessing any advantage over those that have been described above.

The *Rudgwick breed* is a large kind of swine, which the author of the *Survey of Middlesex* says, is the largest in the island, met with at the village of that name, on the borders of Sussex and Surrey. They feed to an extraordinary size, and weigh, at two years old, nearly double or triple the usual weight of other sorts of hogs of that age. As large breeds pay the farmers best in many cases, such a breed deserves to be attended to in the system of hog management.

The *large spotted Woburn breed* is a breed introduced by the late Duke of Bedford, being large in size and of various colors. It is a hard, well formed prolific sort, rising quickly to a large weight.

The *Wiltshire breed* is a long-bodied, low hog, hollow about the shoulder, and high on the rump, middling large pointed ears, round bone, light in color.

Yorkshire breed. This, in the old breed, was probably the worst large variety we had; extremely long-legged and weak-loined, their constitution not of the soundest; and bad stye-pigs in the winter season; they were yet quicker feeders than some of the superior breeds. They have been improving some years from the Berkshire cross, but are still inferior to the north-western stock, rendering a less price at market.

The *Northamptonshire breed* was formerly a handsome, light-eared, white, deep-sided pig, with middling bone, and quick of proof: the breeders have since tried the new Leicester.

The *Leicestershire breed* is, in the original stock, large, deep, and flat-sided, light-spotted, with rather handsome head and ear. The Bakewell variety has much merit.

The *Lincolnshire breed* was formerly light-colored and white, like those of Northamptonshire, many of them having curled and wooly coats. They are middle-sized, quick-proving pigs.

The *Norfolk breed* is a small, short, up-eared porking sort, various in color, white, bluish, striated; generally an inferior kind, which it would be to the interest of that great corn country to improve; they are, however, of a thin-skinned, quick proving kind. But in the vicinity of Lynn, and generally on the Lincoln side of the country, there is a larger spotted variety of very good form and quality, which should be encouraged.

6

Suffolk breed (fig. 6.) This is a small delicate white pig, which has for many years had great reputation, and at this time there is not only a strong prejudice in their favor in their own county, but they have many advocates out of it. They are shorter, and more pug-formed than the Norfolks, and by their dish-face, and pendent belly it may be supposed, that the variety proceeded originally from the white Chinese. Some of the Suffolks are very handsome, and very regularly shaped: their defects are, that they are great consumers in proportion to their small bulk, and that they produce little flesh.

The *Essex breed* are up-eared, with long sharp heads, roach-backed, carcases flat, long, and generally high upon the leg, bone not large, color white, or black and white, bare of hair, quick feeders, but great consumers, and of an unquiet disposition.

The *small white English breed* is met with in many districts; it is of a white color, thick, compact, and

well made in the body; short in the leg; the head and neck well formed, and the ears slouching a little downwards. It is well disposed to fatten, and perfectly hardy. It prevails much in the northern districts.

Swing-tailed breed. This is an useful sort of the smaller kind of hogs, hardy in its nature, and of considerable weight in proportion to its size.

There are many other varieties and subvarieties in England which it is unnecessary to notice here. Donaldson remarks, that the Berkshire and Hampshire hogs are the largest; but that it is most probably from the Berkshire stock, that the greatest number of the varieties of the country have sprung.

Of the *Highland breeds*, that of the Hebrides, supposed by Dr. Walker to be the original, is of the smallest size, neither white nor yellow, but of a uniform grey color, and shaggy, with long hair and bristles; they graze on the hills like sheep; their sole food is herbage and roots, and on these they live the whole year round, without shelter, and without receiving any other sustenance.

In autumn, when they are in the best order, their meat is excellent, and without any artificial feeding; but when driven to the low country, they fatten readily, and rise to a considerable bulk.—(*Walker's Hebrides*, vol. 2, p. 17.)

In the Orkney islands they are commonly of a dark red, or nearly black color, and have long bristles, with a sort of coarse wool beneath them.

The *old Irish breed* are a long legged, thin-sided, lank, haggard, unprofitable sort of swine; but where they have been crossed with the Berkshire, they are considerably improved.

[For the N. York Farmer.]

ART. C.—*Benefits resulting from the total disuse of Ardent Spirits in Farming operations.*

Mr. EDITOR,—This is the second year I have had the pleasure of perusing your valuable paper; and although you treat much on Horticulture, yet I am happy to acknowledge myself much benefitted as an agriculturist; I could wish every farmer in this section of our country, would avail himself of your labors.

Knowing that the cause of temperance is one in which you take a deep interest, and that you are desirous of having those facts that tend to encourage the disuse of intoxicating liquors in that important class of the community—the cultivators of the soil, I take the liberty of giving you an account of my own experience.

For three years, I have strictly adhered to the resolution of entire abstinence from the use of ardent spirits. During this time I have been exposed to all weathers both by day and night, and my health has never before been so good. After trying the experiment on myself for one year, I came to the conclusion that it was my duty to prevail on those in my employ to discontinue the use of the poison. All consented but one man, who had formed so strong an attachment for his three drinks a day, that he left my employ, and will, I have reason to fear, die a drunkard.

Last year I laid out my plan for much work in the way of building and repairing, besides the necessary labor on a farm of 160 acres, with a large stock of cattle. When I made known my determination to have it all done without strong drink, I was told that I should not be able to find men to perform in season the various labors required; but the reverse was the fact. I had from three to nine men in constant employ, every one of whom had been in the habit of drinking moderately before, and yet I do not believe a single glass of spirits was drinked on the place. Some of them in bargaining with me, were fearful they would not be able to go through the labor of haying and harvesting, without some of the strong stimulus. They were, however, willing to make the experiment, and the result was highly gratifying both to myself and them. In the very hottest of the season they were working in salt meadows, and found they could stand the heat and labor better than those working in meadows near them, who used ardent spirits. My crops were very abundant, my cows, twenty in number, were milked by the men. Their work was necessarily early and late, and yet it was always well done; nothing was neglected. They were pleasant, cheerful, no noise, no disputing, seldom any one lost a meal of victuals, and their health was remarkably good. It was a pleasure to see men always in the same temper, and perform their labor with so much good humor, all the result of abstaining from ardent liquors, the tendency of which is to put both body and mind out of tune. They drank freely of coffee, tea, hop-beer, molasses and water with ginger, milk and water, and some cider, which, however, was not as pleasant and acceptable as the others. When wanted, they had something to eat between their three regular meals. My crops were all got in without damage or accident, and in good season; not a horse nor an ox was injured, and scarcely a tool broken.

At the expiration of the season, I had the pleasure of paying my men all their wages, not any amount worth naming had been previously called for, although there were many ways to have spent their money. By not drinking, they had no temptation to frequent a tavern of much resort that was very near my farm.

At the approach of winter, it was necessary to retain but two men. The rest were discharged. On the opening of the present Spring, they all signified a wish to return declaring their decided preference to labor, where liquor was not allowed. I will now state more particularly the individual cases.

In March, 1829, a young man, 23 years of age, of good wholesome appearance, called on me, wishing to be hired for the season; I was willing to give him his price, $15 per month; but the idea of doing without rum rather staggered him; but, said he, if your other men can get along without rum, I can do as much as they. On the 1st of April he commenced, and continued six months without losing a single day. At the expiration of the six months, I hired him for two months longer at $12 per month; and when these were finished, I called him in for a settlement, and found he had drawn on me, during the whole time, only $3 for a pair of pantaloons, and $11 to lend to a younger brother going to the Western country. I was owing him the round sum of $100 which I offered to pay, but he preferred taking my note for it on interest. He left me with my recommendation, and was immediately employed by a gentleman in the state of New-York, who was much in want of a steady man to drive a team in the vicinity of Albany. In this gentleman's employ he was exposed, through all the Winter, to cold and storms, without drinking a single glass of ardent spirits, and yet his health has never been better.

This Spring he returned to me, and I have hired him for eight months at $14, and consider him as cheap a man as I can employ. It is now his intention to save money sufficient to buy him a farm in the Western country.

I have another young man with me, whom I engaged in April, 1829, for two and a half months, but have continued him in my employ to the present time. Although he had formerly been in the habit of taking grog whenever he wanted, yet he has wholly abstained while with me. In settling with him in April, 1830, I found he had drawn on me for only five dollars which were spent for articles of clothing. I paid him $150, which he has lent on interest to a brother to enable him to pay in part for a small farm recently bought.

Last fall I hired an Irishman, 28 years of age, who had been in this country seven years, had accumulated no property, and was in the practice of taking his allowance of grog. He was to have $8 per month through the winter. He continued to labor faithfully through the cold season without the aid of any of the burning liquors. I have this spring engaged him for eight months at $12. He says he never felt better nor so strong for spring work as he now does. Whenever he sees his fellow countrymen, he urges them to let rum alone. I find him to be a careful and faithful man, spending none of his money except for clothing, and endeavoring to save sufficient to buy him a piece of ground.

The above, sir, are sufficient to show you the good effects that entire abstinence has on young men. I could state some equally and even more beneficial on men of family. I have seen families of neglected wives, and squalid children, suffering under the most distressing poverty, regenerated and born anew, simply by having the husband and father dash the poisonous cup from his lip. The heart of the mother has beat for joy to see her children decently clothed, and mingling with those of her neighbors in the Sunday School.

From the experience I have had, I am confident that all kinds of farming operations, and at all seasons, can be accomplished far better without than with ardent spirits. A steady farmer, who lives within a few miles of me, last season hired two men, during haying and harvesting. He purchased *thirty-six gallons of rum*, the greater part of which those two men drank, and yet almost every day they were murmuring because they did not get more. This farmer labored hard himself, and yet his work did not go on well. I told him the monster, Rum, retarded all his operations; that I had three barns containing nearly one hundred tons of hay, which was all got in without trouble, and in time; and that my men worked hard, and yet were satisfied.

In conclusion, I am happy to say, that many of my neighbors have come to the determination to have all their farming done without the use of spirits. I truly hope that your readers will imitate the example, and thus they will benefit themselves and their fellow creatures.

W. K.

New-Haven County, Con.—May, 1830.

Rice Bread.—Boil a pint of rice soft—add a pint of leaven, then three quarts of the flour—put it to rise in a tin or earthen vessel until it has risen sufficiently—divide it into three parts—then bake it as other bread, and you will have three large loaves.—*Charleston Gazette.*

ART. CI.—*Report of the Committee of the New-York Horticultural Society, on the proposition of the Pennsylvania Horticultural Society respecting a Premium for destroying Insects.* [Read, May 25.]

The subject which was referred to your Committee, viz. that of proposing a premium for the discovery of an effectual means of preventing the injury to fruit trees, by the attacks of Insects, was some time ago presented to the consideration of our Society by a patriotic lady of New Jersey—well known for her zeal and liberality in promoting scientific researches. The Society, at that time, passed a vote expressive of their willingness to co-operate in any measure which would tend to accomplish so desirable an end, and no doubt the same desire still exists among us to encourage any project having, for its aim, Horticultural Improvement. The present object is well worthy of the attention, not only of all who are engaged in the occupation of gardening, but of every one who wishes to promote public good, and increase human happiness. The ravages committed by these minute, though powerful foes, will sometimes utterly destroy the produce of a whole season, in other respects the most favorable, and thus occasion the most serious loss to the cultivator. The extent to which the evil is suffered, in some seasons, calls imperiously for some efforts to discover a remedy; and it has accordingly been proposed to our Society to unite with others in offering a premium which shall induce the research and experiments of scientific men to ascertain if any such remedy does exist. That the cause of complaint, however, will ever be effectually removed in this manner, your Committee entertain strong doubts.

It seems scarcely to be within human power to devise any plan by which an enemy can be repelled whose attacks are so much beyond our reach, and to which our property is necessarily so much exposed. Even the generality of the proposition must shew the impossibility of its success. To devise a plan to prevent the ravages of fruit and fruit trees by insects, which shall be easy of application and of universal efficacy, is offering a task which human ingenuity can never perform. There are so many different species of insects which infest our fruit trees, and so multifarious are their habits and modes of attack, that if, possibly, a preventive could be found which would apply to one race of these destroyers, there would still remain thousands of others, equally formidable and destructive. It is well known, that various species direct their ravages to a greater or less extent against every individual part of a tree, from the root to the seed, some of them insinuating their eggs into the very centre of the root, stem, flower, or fruit, where they prey in security from any applications which should be directed against them. What remedy could be supposed capable of reaching an evil which is so closely connected with the very existence of the fruit or tree, and which, if its efficacy were certain, would not far exceed in labor and expense the value of the fruit which might be rescued by means of it from destruction?

The same injury, of which we complain, has existed from time immemorial in this, and in other countries, where horticulture is better understood than among us. At certain seasons, when the damage occasioned by insects has occasioned great dis-

tress among cultivators, it has caused wealthy proprietors, and often the government to interfere and endeavor to prevent further injury by offering large premiums for the discovery of a certain remedy. In general, the greatest extent of mischief is caused by a single species of the insect tribes. Of this kind is the melolontha, which is, at this time, one of the most common, and most pernicious of the destroying race in various parts of Europe, and notwithstanding the large rewards which have been proposed for his extirpation, he continues to baffle all the ingenuity of the most skilful horticulturists.

The same thing may be said with respect to many other species, which have, at times, from the damage they have caused, been the subject of public edicts. The Locust, the Hessian Fly, the weavil and the like, have, in their turn, excited as much alarm as a pestilence; and immense rewards have been publicly offered for the means of suppressing their ravages. Such, at one period, was the immense amount of damage occasioned to the sugar crop by a species of Ant in the island of Granada, that the government proposed a premium of £20,000 to any one who should discover an effectual mode of destroying them. Notwithstanding the powerful inducements which public, as well as individual interest has held out, in no instance has success attended the plan. The evil has passed away rather by the operation of natural means, such as change of weather, frost, or the like, human efforts having been found altogether unavailing. Experience, therefore, has fully exposed the futility of proposing premiums for preventing the depredations of insects. Sounder views of the nature of the evil which we are so eager to overcome that we are apt to forget the limited nature of our own powers, may suggest to us that it is perhaps inseparably connected with, and a necessary concomitant of, our fertile soil and healthful climate; and is only a slight counterbalance to the blessings we derive from those sources. The genial sun, and the mild atmosphere on which the maturity and fine flavor of our fruit depend, are equally propitious to the hosts of Insects which are sustained by these fruits, and which are destined to prevent the intended monopoly of man in the bounties of creation; and we may rest assured that we shall never be able to rid ourselves of the one while we continue to enjoy the other. It is only at certain seasons, not of frequent recurrence, that we have to sustain any very serious losses of our fruit by the ravages of Insects, and these periodical excesses may be considered in the same light as the occasional epidemics which infest every climate, and against which no human provision can avail.

But although it may be beyond our control to prevent entirely the destructive attacks of the Insect race, yet it may be considered as within the compass of human means to diminish the evil which we cannot eradicate. As long as our fruit trees are placed in the open ground to enjoy the benefit of the sun and air, they must necessarily be exposed to the access of winged insects which can approach them in every direction. All that can be recommended, then, is to use such means as are in every one's power, and to diminish, as much as possible, the number of the enemy, and thus to rescue a part of the crops, if all cannot be saved. Let the attention of the gardener, or the grower of fruit be directed to gain a knowledge of the peculiar habits of the various kind of Insects which infest his garden or orchard, the manner in which their depredations are committed, the seasons in which they undergo their several transformations, and in which they are most destructive, the sorts of vegetable food which they prefer, and in short, whatever relates to their instincts and economy. An acquaintance with these particulars might lead to the surest means of destroying them, or at least of eluding their attacks. Great numbers might be got rid of at a trifling expense of time or labor, if their retreats were observed where their eggs or nests are deposited, along fences or enclosures, at the roots, or suspended on the limbs of trees; and in this manner multitudes might be prevented from arriving at a state to produce mischief. It is a fact, also, worth noticing, that the war of extermination is not to be waged indiscriminately against the whole race, since even among these minute beings there exist carnivorous tribes which prey exclusively on the weaker species of their own kinds like similar animals of a higher order, and thus render essential service to man in destroying his foes. But the most useful auxiliaries of the horticulturist against his insect enemies, are the Insectivorous Birds. The number which a single individual of the feathered race will destroy, in one year, far exceeds all that could be effected by the utmost stretch of human power; and hence it is the obvious interest of every one concerned in the cultivation of fruit to cherish and protect from injury those useful servants, to encourage them, as much as possible, to frequent the orchard and garden, and increase the numbers of those which are capable of domestication.

These may appear to be but simple means which are thus recommended to avert an evil of such magnitude; but they are the only ones which can be resorted to with any hope of success in a case where human power has so little control. The committee recommend, in conclusion, that a copy of the resolution formerly passed by the society, on the subject, be sent to the Philadelphia Society, assuring them, at the same time, of the continuance of our desire to act in unison with them, as the case may require.

SAMUEL L. MITCHILL,
ABRAHAM HALSEY,
WILLIAM WILSON.

ART. CII.—*Proceedings of the Inspecting Committee of the New-York Horticultural Society.*

March 9th. Mr. Wilson exhibited 4 heads of Cape Brocoli from the open ground—with a communication on the subject.

Mr. Neale, one pot of yellow Crocus, one do. Striped, do. and one do. Primeroses.

March 15. Messrs. Oakley, Palmer and Combault, were appointed a committee to make better arrangements for receiving and examining vegetables, plants, flowers and fruit presented for inspection.

Messrs. Hamilton, Cooke, & Floy, were appointed a committee to draft rules and regulations for the government of the Inspecting Committee.

A parcel of seeds from Mexico, sent to the Society by Mr. Clark, were delivered to Messrs. Hogg, Floy, and Wilson for cultivation.

March 30. Mr. Warner presented Apricots in blossom, Polyanthus, Iberis sempervirens from seed obtained from the Society, and Hepatica in flower from the open ground.

April 6. The committee, appointed to draft regulations, made a report, which was accepted.

April 13. Mr. Fleet presented raisins, dried and preserved at Lansingburgh, forwarded by Mr. A. Walsh. They were perfectly cured, and of agreeable flavor.

Mr. Cooke, some beautiful Hyacinths.

April 20. Mr. Neal presented stalks of Rhubarb, six of which weighed 13¾ lbs. and were blanched 2 feet in length.

April 27. Dr. Pascalis gave to the Society a plant of the Chinese Mulberry Tree. It was consigned to the care of Mr. Hogg.

May 4. Mr. Floy exhibited 16 kinds of Flowers; among them were Magnola cordata, Pelargonium lanceolatum, Calciolaria gorymbosa, Pelargonium grandiflorum, Metrosideros lanceolatum, Lavandula primata, Glycine bitumentosa, Lavandula dentata, Primula cortusoides, Pelargonium triste, Magnolia obovata, Prince Regent Geranium, Pelargonium quercifolium,—Glutinosum.

Mr. Prince, a beautiful collection of 38 species and varieties of flowers, some of which were the following: Wistaria Consequana, *of China*, Pæonia Monan v. Banksii, —— —— v. rosea.; —— —— v. papaveracea, —— anomala, Magnolia obovata, Smilacina stellata, Cypripedium pubescens, Convallaria mutiflora, Corydalis formosa, Phlox divaricata, *var. alba.* Classic Harebell, Ranunculus repens, *pleno*, *rare*, Viola grandiflora, *var. lutea.* Polemonium reptans, Phlox stolonifera, Uvularia grandiflora, Large Double Flowering Cherry, Acacia pulchella, Polygala myrtifolia, White Grape Hyacinth, Double Crimson Primrose.

May 11. Mr. Floy, among other flowers, presented specimens of Magnolia fuscata, White Persian Lilac, Pink, do., Siberian Lilac, and a ripe seedling strawberry, raised from seed received from London last spring.

Mr. F. Feitner, 6 heads of very fine Silesia Lettuce, 2 of which weighed 2 lbs. ½ oz., and six leaves of Rhubarb.

May 18. The Corresponding Secretary laid on the table an assortment of seeds from the Island of St. Thomas, received from Mr. Chombough. They were handed over to the professional members to be planted.

Mr. Morrow, six kinds of Tulips.

Mr. Neale, a handsome exhibition of 36 kinds of Tulips.

Mr. Floy, scarlet Double Flowering Thorn, Calycanthus floridus, native Columbine, and others.

ART. CIII.—*Miscellaneous—Original and Selected.*

Strawberries and Green Peas were in the New-York markets as early as the 20th inst.

Zoological Garden in New-York.—Among the many places of amusement and instruction which add to the privileges of our city, is the menagerie of Messrs. Teer and Hanington, at the corner of Broadway and Canal-street. The Garden recently opened, has been fitted up in a very convenient and handsome style. In the centre are several large and venerable trees, under whose shade is a reservoir of water, in which sport various kinds of the most rare and curious aquatic birds. Around the sides of the Garden are neat enclosures, containing wild beasts, birds, and reptiles, exhibiting all their natural habits and manners as near as the necessarily circumscribed limits will permit. In cages suspended on the branches of trees, and in different apartments of the garden, are birds remarkable for their plumage and their song. Among them are a sea-dog, sporting in his native element, two gigantic bears from Newfoundland, a growling Lynk from Nova Scotia, Porcupine Pigs from Mexico, Ichneumon from Egypt, a large Adjutant from Bengal, a crowned Heron from Africa, and others too numerous to mention.

The Garden is well ventilated, and kept neat and clean. As a place for the study of Natural History, and for the display of the wonderful and curious productions of nature, it is well worth visiting; and the proprietors are deserving of a large share of public patronage.

The Season.—In every part of our widely extended country, vegetation is spoken of as having taken an unusually early and vigorous start. All kinds of fruit trees budded and expanded their blossoms very promisingly, but the cold storms and slight frosts of the present month have injured currants, gooseberries, and very probably the grape. Grass and grain give encouragement for abundant crops. In Maryland, however, the Hessian-fly is said to be preying upon the wheat. An Easton, (Maryland) paper says, that the hopes of the farmers are again nearly blasted by this pernicious insect. Accounts have been daily brought in by the farmers from all parts of the county, of the great ravages of the fly. In some instances, in best lands, best farmed, the destruction is dreadful and astonishing, and they hear of no wheat except the rare ripe that has escaped at all—there are a few lots and nicely prepared fallowed fields of this rare ripe wheat that are luxuriant and beautiful—nearly one half the crop of wheat, it is feared, is already gone. Upon many of the thin lands there will scarcely be any crop at all. The appearance of the fly, it is stated, was rather later than usual, but the havoc it committed was proportionably rapid and great.

Dye from Potato-Flowers.—Sir J. Sinclair has ascertained, by a series of experiments conducted under his superintendence by G. Page and Co. dyers, Prince-street, that permanent and beautiful colors in silk, cotton, and woollen goods, may be produced from the flower of the potato. Sir John says, that these colours are "equal to the finest tints procured from the most valuable foreign materials, and in richness of shade they are likely, in some cases, to be even superior;" and he adds, that "it is a peculiar advantage attending this discovery, that the cutting of the flowers of the potato is not prejudicial to the plant; on the contrary, by preventing the formation of the seed or apple, there is reason to believe that it will add to the weight and improve the quality of the root.—*Caledonian Mercury.*

Blanched Sea-kale.—Gen. H. A. S. Dearborn, President of the Mass. Hort. Society, has kindly presented us with the cuttings of some blanched sea-kale plants, raised by him, at his residence in Roxbury.

These, boiled and dressed like asparagus, were fully equal to that vegetable as an article of diet. The plants were raised in rows, and we believe the mode of cultivation was the same usually pursued for that esculent. But the mode of blanching was peculiar, and seems to present advantages over the common custom of covering with earthern pots, or earthing up, as in celery. The process was something like the following:

Two boards about 12 or 14 inches wide, and 10 or 12 feet long, were nailed together at the edges, so as to form a right angle; so that when the edges not nailed were turned down, and placed on the ground, they formed an angular covering like the roof of a house, the highest part being the ridge. Cross-boards, properly shaped, were then nailed at the ends, so as to prevent warping, and complete the covering. These were placed over the rows, and excluded light from the vegetables as effectually as earthen pots, and with much less labor and expense of time and materials.—*N. E. Farmer.—May* 18, 1830.

Rules for making Good Butter.—If you have four or five cows, it is best to churn every day; and by no means less frequent than every other day. If you cannot churn every day, throw into the cream when gathered a handful of nice salt. In very warm weather, when milk sours soon, put two heaping table spoonfuls of salt in every pail of milk, before straining. The quantity as well as the quality of the butter is greatly improved by this method. If you have ice put a small piece into every pan of milk, and also into the cream when you churn. If you have no ice, put the cream into a pail, and hang it into the well, twelve hours before churning. In the warm season, cream should be skimmed as soon as it is in the least sour, and in the coldest weather milk should not stand more than thirty-six or forty-eight hours. The utmost care should be taken to keep every article used in making butter perfectly sweet, by frequent and thorough scalding.

Jour. of Humanity.

Golden Pippin.—I think so highly of the *Golden Pippin*, and feel so desirous of doing away the impression that they will not keep through the fall, that I send a few of the last from my farm in this place. The trees can be traced back for near a century. Trees imported by my father about twenty-five years since, bear well at Byfield; the fruit I think larger and better than from my old trees; and last week I found the apples from the trees at Byfield perfectly sound and in a proper state for eating. I make no doubt they will remain so quite into June. Try them this day, and tell me plainly how far too much prejudice carries me.

Your obedient servant, GORHAM PARSONS.

May 18, 1830. *N. E. Far.*

Plants from India.—A considerable number of rare, and hitherto unknown plants, of Persia and India, have been sent to France by M. A. Bellange, who went to India by land, for the purpose of superintending the Botanic Garden at Pondicherry. New species of melons, of tobacco, and vines, are among the articles transmitted by him.

French Colonies for the Poor.—A plan has been proposed to the Minister of the Interior, to establish in some of the uncultivated departments of France, agricultural colonies for the poor, like those that have proved so successful in the Netherlands.—*French Paper.*

Preservation of Potatoes.—Potatoes at the depth of one foot in the ground produce shoots near the end of the spring; at the depth of two feet they are very short, and never come to the surface; and between three and five feet they cease to vegetate. In consequence of observing these effects, several parcels of potatoes were buried in a garden at the depth of three feet and a half, and were not removed until after intorvals of one and two years. They were then found without any appearance of germination and possessing their original freshness, firmness, goodness and taste.

An. de la Soc. d'Agric.

Management of Domestic Animals.—In the management of your various animals, having selected the best bloods, you have only to provide for them warm, dry, and commodious shelters, and deal out to them sweet and wholesome fodder, and pure, clean water. Neatness and cleanliness in this department will contribute much to the health, growth, and corpulency of your stock. A slattern in the house is not more disgusting and unprofitable, than a sloven in the barn. In the treatment of those patient and docile animals which perform your labor, let me crave your mercy. Neither suffer them to moan with hunger or thirst, nor to be loaded or driven beyond their strength. A mild and generous usage will secure their attachment, excite their courage and resolution, and dispose them to volunteer their most vigorous efforts in your service. Your interest, as well as the dictates of humanity, require that you abstain from all cruelty and abuse, and that your dominion over them be tempered with lenity and kindness.—*Foster's Address.*

The Advantage of sowing Peas in circles instead of straight rows.—It is a great error in those persons who sow the rows of tall growing peas close together. It is much better in all those sorts which grow six or eight feet high, to have only one row and then leave a bed ten or twelve feet wide for onions, carrots or any crops which do not grow tall.

The advantages which will be derived, are, that the peas will not be drawn up so much; be stronger; will flower much nearer the ground, and in wet weather can be more easily gathered without wetting you.

But instead of sowing peas in straight rows, if you will form the ground into circles of three feet diameter, with a space of two feet between each circle, in a row thirty feet long, you will have six circles of peas, each nine feet; in all, fifty-four feet of peas, instead of thirty on the same extent of ground.

If you want more than one row of circles, leave a bed ten or twelve feet before you begin another.

For the very tall sorts, four feet circles will afford more room for the roots to grow in, and care must be taken, by applying some slender twigs or strings to prevent the circles from joining each other.—*Repertory of Arts.*

Canada Plum.—Mr. RUSSELL,—I would wish to inform the Massachusetts Horticultural Society, that I have been remarkably fortunate in raising Plums from seed; for I certainly would not exchange my seedlings for all the varieties hitherto known; among them is one, an extraordinary bearer,—and I believe, surpassing in flavor any other in existence in any American Nurseries. I have also, three very fine *new* Apples of accidental origin—cuttings of all which, should it be desired, I shall be proud of forwarding to the Massachusetts Horticultural Society. H. CORSE.